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EDITORIAL.

Propagation of Fruits.

Vegetative re-production of plants by the method known as etiolation has commanded considerable attention, largely as a result of the successes obtained by this method at the East Malling Research Station, Kent, England. Briefly, the operation consists of planting the plants to be propagated in rows, each plant being placed obliquely in the soil at an angle of 35° to the horizontal, and when sufficiently established, pegging the young plants down in shallow trenches a few inches below ground level. As shoots appear from the stem and lateral branches, an inch or so of soil is placed over the entire plant. As growth proceeds, further soil is added until a layer of 4 to 6 inches in depth covers the base of the shoots. This condition causes free rooting in the blanched (or etiolated) portion of the stem below the soil. Subsequently, the individual shoots with new root growth are cut from the parent stem and planted in bamboo joints or earthenware pots where they remain until they are sufficiently developed to plant in the field.

As has been pointed out in an earlier article on this subject, published in this Journal, it was by no means certain that the method would be equally successful in this country, owing largely to differences in temperature and to the fact that in England the plants are deciduous and are pegged down in winter when the trees are dormant.

In view of the important bearing on the multiplication of stock for planting which this system, if successful, may have in various branches of agriculture in Malaya—and in particular on fruits—trials have been conducted at various centres with several fruit trees and other plants of a woody nature. The technique has been varied somewhat to suit local conditions. In the course of the past three years, much data has been obtained, and although finality has not been reached in a number of cases, much information of value has been obtained. A detailed account of this work is included in the present number.

With several crops, the application of this method has been unsuccessful. The author includes an account of the failures as well as the successes, as he quite rightly holds the opinion that it is just as important for the reader to know the plants with which this method is unsuccessful as to know in which cases it may be employed. The recording of such information may save

growers the disappointment and expense entailed in attempting to propagate particular plants by this method which are foredoomed to failure.

The Rice Mill at Temerloh.

In the April number of this Journal we published a description of the Government Rice Mill at Temerloh, Pahang, which was formally opened in February of this year. The mill was inaugurated to encourage an extension of padi planting in the State, to provide a market for excess production which was experienced in certain districts, and to overcome transport difficulties which at that time rendered surplus padi unsaleable at remunerative prices.

The mill has thus been in existence for about six months, during which period those responsible for its operation have accumulated experience which is of value, especially in connexion with similar projects under contemplation elsewhere.

Mr. W. C. S. Corry, District Officer, Temerloh, who is intimately concerned with the operation of the scheme, has favoured us with an article, which will be found on another page, in which he frankly reviews the situation and points out the difficulties which have been encountered and which have militated against the success of the scheme.

At first glance it appears that the mill has not been an unqualified success, and it must be admitted that it is not yet a financial success. But it would be unfair to express too hasty a conclusion after such a short period of working. The mill is primarily designed to encourage padi planting. This cannot be accomplished in so short a period, but if, in the next few years, we can point to an appreciable increase in the area under this crop in this part of Pahang, then the mill will have succeeded in one of its objects.

The most serious criticism, and one which has operated more than any other against the financial success of the mill in its initial stage, is that concerning the estimate of available padi in the District. We are informed that two separate estimates shewed a wide variation. The difficulties of estimating a crop grown by a large number of producers and over an extensive area of country are very great, especially when a large part of that crop is used for domestic consumption by the producers. It is inevitable, therefore, that estimates should vary considerably. At the same time, experience points to the necessity of a most careful and conservative estimate of yields before embarking on further projects of a similar nature.

There remains, however, one most satisfactory feature of this project, which perhaps more than compensates for deficiencies in other directions; we refer to the stabilization of the price of padi in the District which has been effected as a direct result of the operation of the mill. Previously, satisfactory crops of padi caused the produce to be unsaleable. This in a District such as Temerloh is a serious matter, as padi amongst the poorer Malay cultivators is considered practically as cash. Satisfaction may therefore be felt at the fact that the price which the grower usually obtains for his crop has been much greater than before, and has been maintained at a level which may encourage him not only to keep his present areas in cultivation, but to develop new areas in suitable situations.

Original Articles.

THE ETIOLATION SHOOT METHOD OF FRUIT PROPAGATION.

Progress Report up to September, 1935

BY

J. LAMBOURNE,

Assistant Agriculturist.

The propagation of fruit trees by a method of layering which has become known as the "Etiolated Shoot" or "Etiolation" method of propagation was commenced at the Central Experiment Station, Serdang, in July, 1932. This method is similar to that used at the East Malling Fruit Research Station, Kent, for the propagation of plum stocks. The method used at Serdang is described in the *Malayan Agricultural Journal*, Vol. XXII, No. 2, p. 58.

Investigations have been continued both at Serdang and at Agricultural Stations throughout Malaya, and results obtained to date at all Stations are incorporated in this report. The Agricultural Officers of the Field Branch of the Department of Agriculture are responsible for the information available from the Agricultural Stations and the writer has been in charge of the work at the Central Experiment Station, Serdang, since its inception, except for nine months, October 1934 to July 1935, when Mr. T. D. Marsh, Assistant Agriculturist, was in charge.

In this report it is proposed to deal in detail with each species of fruit separately.

Avocado Pear, *Persea gratissima.*

Two one-chain rows (beds) of seedlings were planted at Serdang in February, 1933, since no vegetatively propagated material was available. These plants were soon established and, after pegging down, produced strong shoots. Root formation was slow even after ring wiring.

Rooted shoots were obtained but growth has not been as satisfactory as with budded plants. Details of dates at which various operations took place and the number of rooted shoots obtained are given in the following table.

Bed No.	Date planted.	Date pegged down.	Date earthed up.	Date wired.	Date roots appeared.	Date removed from bed.	No. of rooted shoots.
7 & 8	5.2.33	—	—	3. 8.33	—	20.1.34	12
		17.8.33	13.10.33	16.11.33	10.12.33	22.2.34	47
		23.2.34	12. 4.34	23. 4.34	24. 6.34	5.8.34	7

Note—A one-chain bed throughout this report = 66ft. x 2½ ft.

Subsequently, in October, 1934, a number of strong shoots in one bed were budded with proved material, and the other bed was replanted with budded plants. No further results are available at present except that the budded plants have been pegged down and shoots are appearing.

Brazil Nut, *Bertholletia excelsa.*

Strong-growing seedlings were planted in a bed at Serdang in October, 1934. These were pegged down in January, 1935. Strong shoots appeared, were earthed up and ring-wired but so far no roots have appeared.

Carambola, *Averrhoa carambola.*

This fruit has not been propagated by the etiolation method at the Central Experiment Station, Serdang, up to the present, but the Agricultural Officer, Province Wellesley, reports that unwired shoots appear to root more easily than wired shoots.

Chiku, *Achras sapota.*

Several trials with this fruit have been made; strong marcotted plants were planted on each occasion. The first bed was planted in July, 1932, but the mistake was made of completely covering the plants with earth to a depth of one inch and all died except one, from which one rooted shoot was obtained. This bed was planted again on the 14th December, 1933, and a number of rooted shoots have been obtained, but most of the plants in the bed have died. A second bed was planted on 2nd October, 1933. Details of trials carried out at Serdang are shown in the following table, from which it will be seen that the method has not been altogether a success with the chiku :—

Bed No.	Date planted.	Date pegged down.	Date earthed up.	Date wired.	Date roots appeared.	Date removed from bed.	No of rooted shoots.
1	12. 7.32	7. 8.32	10.3.33		29.5.33	3. 7.33	1
	14.12.33	14. 5.34	24.6.34	15.7.34	10.8.34	5.10.34	25
		11.10.34	30.5.35	7.9.35			
Most of the plants have died.							
19	2.10.33	6.12.33	17.2.34	22.3.34	9.5.34	10. 8.34	13
		,,	,,	,,	,,	,,	18
		4.12.34	2.3.35	28.3.35	2.8.35	3. 9.35	17

Two other marcotted plants from different sources were planted on the 11th April, 1934; in both cases the shoots died after wiring. The beds were therefore opened up and re-pegged down on the 24th May, 1935. Healthy

shoots have appeared; these have been covered and wired but so far only a few are showing root development.

This method of propagation has been tried at several Agricultural Stations in different parts of Malaya but with little success.

It is possible to root the chiku by this method, but plants so rooted are difficult to establish in bamboo joints and make very slow growth. Earthenware pots are better than bamboo joints for the purpose.

Citron, *Citrus medica.*

This plant is easily propagated by cuttings and therefore roots freely by the etiolated shoot method without the aid of ring wiring. The first crop of rooted shoots at Serdang was taken from the bed five months after planting and further rooted shoots can be obtained every three months. During thirty-two months, 630 rooted shoots have been obtained from a one-chain bed. There is no record of trials with this fruit at any of the other Agricultural Stations. The rooted shoots are fairly easily established when potted in bamboo joints.

Coco Plum, *Chrysobalanus Icaco.*

A quarter-chain bed was planted with seedlings on the 2nd October, 1935, and rooted shoots have been obtained after ring wiring. The following table gives details of the time taken to obtain rooted shoots, and the number removed from the bed. It is possible to establish rooted plants in bamboo joints, but the percentage of casualties is large, earthenware pots being better for the purpose :

Bed No.	Date planted.	Date pegged down.	Date earthed up.	Date wired.	Date roots appeared.	Date removed from bed.	No. of rooted shoots.
18	2.10.33	6.12.33	20.12.33	26. 1.34	17. 3.34	12.5.34	1
		„	„	„	7. 7.34	10.9.34	10
		23. 9.34	12.11.34	28.11.34	27.12.34	13.4.35	25
		13. 5.35	15. 6.35	17. 7.35	2. 8.35		

Duku, *Laneium domesticum,* var. *duku.*

So far this fruit has not been propagated by the etiolation method at Serdang. The Agricultural Officer, Province Wellesley and Penang, reports that the duku roots easily without wiring, but growth is slow. This plant is fairly difficult to propagate both vegetatively and by seed. It can be reproduced by marcottage and also by budding. Seeds are very slow to germinate and in all cases growth is extremely slow at first.

Durian, *Durio zibethinus.*

Seedlings were planted in a one-chain bed on the 2nd October, 1933. Strong shoots appeared on some of the plants before they were pegged down, but others were slow to produce shoots. Rooted shoots have been obtained after ring-wiring and a few have been established in bamboo joints. The shoots are usually rather large before roots appear. Dates of the various operations are given in the following table :—

Bed No.	Date planted.	Date pegged down.	Date earthed up.	Date wired.	Date roots appeared.	Date removed from bed.	No. of rooted shoots.
20	2.10.33	6.12.33	20.12.33	29.2.34	23.3.34	14.5.34	2
	"	"	"	"	"	19.7.34	15
		20. 7.34	2. 8.34	28.8.34	did not root.		
	17.12.34	26. 2.35	12. 3.35	13.3.35	3.5.35	5.8.35	9

The Agricultural Officer, Province Wellesley and Penang, reports that this plant roots after wiring but large gall-like growths appear above the wire. The durian has also been successfully rooted by the etiolation method at the Singapore Agricultural Station where roots are said to have appeared in 8 to 12 weeks from the date on which shoots first appeared. Roots are said to appear quicker if a portion of bark is removed from the shoot.

Grape Fruit, *Citrus decumana.*

There has been no trial with grape fruit at Serdang, but the Agricultural Officer, Malacca, reports having obtained rooted plants by ring-barking the shoots.

Guava, *Psidium guajava.*

Owing to a lack of authentic material for propagation, seedlings were planted in a one-chain bed on 2nd October, 1933. It has been found that shoots root freely when ring-wired and a large number have been established in bamboo joints. The following table gives dates of the various operations as carried out at Serdang :—

Bed No.	Date planted.	Date pegged down.	Date earthed up.	Date wired.	Date roots appeared.	Date removed from bed.	No. of rooted shoots.
17	2.10.33	6.12.33	14.12.33	8. 1.34	24. 2.34	7.3.34	135
		20. 3.34	5. 4.34	20. 4.34	25.5.34	27.8.34	95
		4. 9.34	3.10.34	30.10.34	7.2.35	18.4.35	65
		9. 5.35	11. 6.35	14. 7.35	29.8.35		

Jack Fruit, *Artocarpus integrifolia.*

The jack fruit has not been propagated at Serdang by the etiolation method but the Agricultural Officer, Province Wellesley and Penang, reports that shoots have been successfully rooted after wiring and sometimes without wire. A continuous supply of young rooted plants can be obtained. Plants planted in the field have made rapid growth.

Jambu Ayer Mawar, *Eugenia aquea.*

The Agricultural Officer, Province Wellesley and Penang, reports that this species roots quickly and easily by this method of propagation but ring-wiring is necessary.

Jambu Chilly or Jambu Betai. *Eugenia javanica.*

This plant has been successfully rooted at Serdang, both with and without ring-wiring, but better rooted shoots were obtained after wiring. This plant roots freely when marcotted and was easily established in beds when planted direct from the parent tree. A large number of rooted shoots have been established in bamboo joints but not without a large number of casualties. The following table contains data collected during the trial. Two beds, one chain long, were planted on 24th February, 1933.

Bed No.	Date planted.	Date pegged down.	Date earthed up.	Date Wired.	Date roots appeared.	Date removed from bed.	No. of rooted shoots.
15	24.2.33	14. 7.33	14. 7.33			17. 8.33	12
		6.11.33	16.12.33	20.12.33	10. 1.34	20. 2.34	185
		26. 3.34	4. 4.34	1. 5.34	15. 6.34	22. 8.34	120
		5. 9.34	15.10.34	17.11.34	15. 2.35	16. 4.35	200
		7. 5.35	11. 6.35	13. 7.35	29. 8.35		
16	24. 2.33					7. 5.33	1
		13. 7.33	13. 7.33		14.11.33	1.12.33	132
		6.12.33	16.12.33	13. 1.34	23. 2.34	26. 3.34	255
		28. 3.34	4. 4.34	1. 5.34	28. 6.34	25. 8.34	140
		5. 9.34	15.10.34	9.11.34	3. 2.35	18. 4.35	160
		7. 5.35	11. 6.35	15. 7.35	29. 8.35	—	—

The data of pegging down, covering etc. was not recorded in the first period and no ring-wiring was done during the first and second periods.

Jambu Kelampok, *Eugenia Jambos* **(Rose Apple).**

A one-third chain bed was planted with marcots of this species on the 2nd October, 1933, and rooted shoots have been obtained by wiring. This species does not root so freely as the jambu chilly but plants have been established in bamboo joints.

Bed No.	Date planted.	Date pegged down	Date earthed up.	Date wired.	Date roots appeared.	Date removed from bed.	No. of rooted shoots.
18	2.10.33	6.12.33	20.12.33	21.1.34	7.4.34	24.4.34	1
						12.5.34	20
	,,	,,	,,	,,	,,	10.4.35	25
		12. 5.35	15. 6.35	13.7.35	26.8.35	5.9.35	5

Kerandang, *Carissa carandas.*

A half-chain bed was planted with seedlings of this fruit on the 2nd October, 1933, and it has been found possible to obtain rooted shoots by ring-wiring. A number have been removed from the bed and successfully established in bamboo joints.

Bed No.	Date planted.	Date pegged down.	Date earthed up.	Date wired.	Date roots appeared	Date removed from bed.	No. of rooted shoots.
21	2.10.33	26.1.34	28. 2.34	5. 3.34	29. 4.34	6.5.34	36
						10.9.34	15
		20.9.34	8.10.34	18.10.34	13.12.34	13.5.35	15
		30.5.35	27. 6.35	19. 7.35	2. 9.35		

Lemon var. Villa Grande, *Citrus lemonum.*

Marcots of this fruit were planted in a one-chain bed on the 26th June, 1933. Shoots root easily if ring-wired, and a number of plants have been established in bamboo joints, also in the field, where they have grown equally as well as budded and marcotted plants. Records taken during the trial are given in the following table :—

Bed No.	Date planted.	Date pegged down.	Date earthed up.	Date wired.	Date roots appeared.	Date removed from bed.	No. ef rooted shoots.
3	26.6.33	22.9.33	23.11.33	19.1.33	20.3.34	12.5.34	75
	"	"	"	"	"	6.6.34	59
		11.6.34	30. 6.34	25.7.34	8.9.34	3.3.35	50
		13.3.35	8. 4.35	17.5.35	27.6.35		

Lime (Lemon-shaped) *Citrus aurantifolia.*

Marcots of this fruit were planted in a half-chain bed on the 26th July, 1932. Numerous shoots appeared and these rooted freely without ring-wiring. It was found, however, that when the shoots were ring-wired, more roots concentrated near the base of the shoot. A large number of rooted plants have been obtained and have been established in bamboo joints. A few have been successfully planted in the field and are making as good growth as seedlings planted at the same time.

Bed No.	Date planted.	Date pegged down.	Date earthed up.	Date wired.	Date roots appeared.	Date removed from bed.	No. of rooted shoots.
2	26.7.32	13.12.32	14. 2.33	—	21.4.33	5.6.33	75
		"	"		"	24.8.33	80
		14.12.33	29.12.33	23.1.34	3.3.34	22.3.34	134
		"	"	"	"	8.6.34	186
		9. 6.34	29. 6.34	25.7.34	'15.8.34	2.2.35	150
		13. 3.35	1. 4.35	15.5.35	28.6.35	15.8.35	89
		28. 8.35	3. 9.35				

Lime (Large fruited var.)

A one-chain bed of plants raised from cuttings was planted on the 23rd December, 1932. These plants also produced numerous shoots which rooted easily without ring-wiring. Like the lemon-shaped variety, a better root system was obtained by the use of wire. Numbers of rooted shoots have been removed from the bed and established both in bamboo joints and in the field, where growth has been good.

Bed No.	Date planted.	Date pegged down.	Date earthed up.	Date wired.	Date roots appeared.	Date removed from bed.	No. of rooted shoots.
4	23.12.32					11.4.33	60
		21. 6.33			18.7.33	14.8.33	26
		14.12.33	29.12.33	19. 1.34	3.3.34	20.3.34	185
		,,	,,	,,	,,	22.3.34	100
		,,	,,	,,	,,	30.6.34	83
		1. 7.34	25. 7.34	2.10 34	3.1.34	23.3.35	200
		28. 3.35	10. 4.35	20. 5.35	17.6.35		

It is reported by the State Agricultural Officer, Pahang, that a fruit grower in Bentong has successfully propagated the lime by this method and numerous rooted shoots have been obtained. The Agricultural Officer, Malacca, also reports success and plants have been planted in the field.

Mango (Indian), *Mangifera indica.*

Two budded plants on Machang, (*Mangifera foetida*), stocks were planted on 2nd October, 1933, to ascertain whether the mango could be propagated by the etiolation method. Shoots have appeared and, after wiring, large gall-like callouses are formed above the wire but so far no roots have emerged. The shoots were taken from the bed and planted in pots but none survived.

Wild Mangosteen, *Garcinia Hombroniana.*

Seedlings of this fruit were planted in a one-chain bed on the 2nd October, 1933. Shoots were slow to appear and so far no great success has been attained, although, after ring-wiring, a few rooted shoots have been removed from the bed and established in pots.

Bed No.	Date planted.	Date pegged down.	Date earthed up.	Date wired.	Date roots appeared.	Date removed from bed.	No. of rooted shoots.
19	2.10.33	6.12.33	1. 2.34	26. 4.34	26.6.34	20.7.34	3
		17. 8.34	13.10.34	26.10.34	18.1.35	16.4.35	15
		28. 5.35	2. 9.35	18. 9.35			

Orange (Washington Navel type), *Citrus aurantium.*

Two marcots of this fruit were planted in a bed on the 19th July, 1932 These plants were completely covered with earth to a depth of about one inch but it was found that instead of shoots appearing the branches commenced to die back. The bed was therefore opened up, one plant was saved and a number of rooted shoots have since been obtained. Although strong shoots appeared and were earthed up when 6 inches high root formation was slow even after ring-wiring. Plants have been established in pots.

Bed No.	Date planted.	Date pegged down.	Date earthed up.	Date wired.	Date roots appeared.	Date removed from bed.	No. of rooted shoots.
2	19.7.32	28. 3.33	16. 5.33	15. 6.33	6. 7.33	24. 8.33	3
		12.10.33	13.11.33	8.12.34	22. 3.34	5. 4.34	3
		„	„	23. 1.34	15. 4.34	9. 5.34	9
		„	„	20. 2.34	12. 6.34	17. 8.34	6
		28. 8.34	7. 9.34	30. 9.34	28.10.34	9.11.34	5
		19. 4.35	7. 5.35	22. 6.35	3. 8.35		

Orange (Mandarin,) *Citrus nobilis.*

This fruit is fairly easily propagated by the etiolation method. A one-chain bed was planted with marcots on the 12th September, 1933, and a number of rooted shoots have been obtained, the majority of which have been established in bamboo joints and earthenware pots.

This variety of orange has been successfully propagated by the same method at Agricultural Stations in Perak and Pahang. It has been found that ring-wiring is necessary to produce rooted shoots and at Kuala Lipis, Pahang, shoots appeared in one month from planting. These were rooted from 2 to 3 months after ring-wiring.

Bed No.	Date planted	Date pegged down.	Date earthed up.	Date wired.	Date roots appeared.	Date removed from bed.	No. of rooted shoots.
5	12.9.33	7.10.33	25.12.33	5. 2.34	7. 5.34	25.6.34	100
	„	„	„	„	„	30.6.34	150
				11. 5.34	6. 6.34	18. 8.34	41
		25. 8.34	9. 9.34	1.10.34	27.12.34	6.3.35	35
		28. 3.35	10. 4.35	28. 5.35	28. 7.35	5.9.35	16 *

* More rooted shoots will be ready for removal shortly.

Pomelo, *Citrus maxima.*

Two one-chain beds and three small beds with one or two plants of different varieties have been planted at Serdang. The date of planting, together with other data will be found in the following table. Satisfactory shoots appear in small numbers and it is possible to root them by this method of propagation, but it is necessary to ring-wire. Rooted shoots have been successfully established in bamboo joints.

The pomelo has also been successfully rooted by this method at the Agricultural Stations, Singapore, and Pekan, Pahang, but shoot production is said to be slow at the latter Station. All shoots have been planted in pots, but no mention has been made of the number that survived. At Serdang, it has been found that a number of casualties occur after potting.

Bed No.	Date planted.	Date pegged down.	Date earthed up.	Date wired.	Date roots appeared.	Date removed from bed.	No. of rooted shoots.
23	2.10.33	6.12.33	15. 1.34	25. 4.34	2. 6.34	9.10.34	20
		12.10.34	1.11.34	23.11.34	13.12.34	10. 5.35	12
		28. 5.35	26. 6.35	22. 7.35			
25	11. 2.34	17. 5.34	29. 5.34	16. 6.34	12. 8.34	3. 9.34	25
		10.10.34	13.10.34	26.10.34	3.12.34	10. 5.35	18
		28. 5.35	26. 6.35	22. 7.35			
26	18. 6.34	17. 3.34	13.10.34	27.10.34	3.12.34	10. 5.35	12
		29. 3.35	27. 6.35	23. 7.35			
21	10.1.34	So far no satisfactory growth has been made.					

Pulasan, *Nephelium mutabile.*

One marcotted plant of this fruit was planted in a bed on the 17th December, 1932, but growth was very slow. Shoots appeared, however, which were ring-wired, and six of these rooted. They were removed from the bed on 6th May 1933, but did not survive after planting in bamboo joints. The original plant died back after the removal of the shoots and did not produce sufficient growth to peg down until March, 1935. Two rooted shoots were removed in August, 1935, but both died. These shoots produced roots in four months from the date of earthing-up and two months after ring-wiring.

The Agricultural Officer, Singapore, reports having obtained rooted shoots of the pulasan by removal of bark from the base of the shoot and that the best results were obtained when shoots were not earthed-up too early. Shoots should be at least one foot high before any attempt is made to root them. Rooted shoots are said to be obtained in from 8 to 12 weeks; this probably refers to the time taken from the date of ringing the bark. Shading the beds, especially during dry weather, has been beneficial. The rooted shoots have been planted in pots, but no mention is made of the number that survive.

Rambutan, *Nephelium leppaceum.*

Marcots taken from the Penang varieties in the Fruit Nursery at Serdang were first planted in beds direct from the parent tree and heavily shaded. Unfortunately, only a few plants survived.

Penang Nos. 2, 3, 4, & 5 were planted on the 24th February, 1933, and Nos. 6 and 7 in May, 1934. A few plants have been added to the first four numbers. The numbers of plants at present in the beds are 8, 3, 6, 4, 2 and 2 respectively, a total of 25.

Bed No.	Date planted.	Date pegged down.	Date earthed up.	Date wired.	Date roots appeared.	Date removed from bed.	No. of rooted shoots.
9	24.2.33	17.2.34	25. 2.34	25. 4.34	20.6.34	5.8.34	20
P. No. 2		20.9.34	16.10.34	16.11.34	24.2.35	4.4.35	15
		5.4.35	9. 5.35	11. 6.35			
10	24.2.33	17.2.34	25. 2.34	23. 4.34	Wired, too young shoots died.		
P. No. 3		2.8.34	9. 9.34	7.10.34	24.2.34	1.4.35	3
		3.4.35	7.5.35	9.6.35			
11	24.2.33	7.8.33	10.10.33	15.11.33	2.1.34	20.2.34	3
P. No. 4		27.2.34	13. 3.34	6. 4.34	20.6.34	5.8.34	15
		23.9.34	16.10.34	16.11.34	23.2.35	2.4.35	9
		5.4.35	10. 5.35	8. 6.35	2.9.35		
12	24.2.33	16.7.33	10.10.33	14.12.33	16.1.34	20.2.34	1
P. No. 5		,,	,,	,,	,,	27.2.34	6
		,,	,,	,,	,,	11.5.34	1
		23.9.34	shoots died.				
		6.4.35	8.5.35	12.6.35	2.9.35		

Rambutans are slow to produce shoots and it has been found that when these shoots are earthed-up and ring-wired before they become slightly woody they die off. All the numbers, except 6 and 7, have produced rooted shoots. Marcots of these numbers were planted later than Nos. 2 to 5.

It is necessary to ring-wire the shoots to produce roots and it has been found that Nos. 2 and 5 produce large gall-like callouses but very few roots. Nos. 3 and 4 produce roots normally. A number of rooted shoots have been planted in the field, but have made poor growth.

Rambutans are also being propagated at Agricultural Stations in Perak, Pahang, Singapore, and Province Wellesley. Rooted shoots have been obtained at all these Stations but all Agricultural Officers, with one exception, agree that ring-wiring is necessary and that the method is slow as the plant does not root freely. The Agricultural Officer, Province Wellesley and Penang, reported in June, 1934, that the rambutan rooted freely without wiring, but that the method was slow.

The Agricultural Officer, Singapore, reports that roots are produced only after ring-wiring and removal of a portion of the bark. He also found that it is not advisable to earth-up or wire until the shoots are a foot high; roots then appear in from 8 to 12 weeks. Shading is found to be beneficial.

Soursop, *Durian Belanda.*

The Agricultural Officer, Singapore, reports that the soursop roots readily both by ring-wiring and removal of a ring of bark.

Tamarind, *Tamarindus indica.*

Seedling plants of this tree were planted in a quarter-of-a-chain bed on 2nd October, 1933, and a few rooted shoots have been obtained, but have not survived. Shoots are slow to appear and, judging by results so far obtained, the method is not very promising. Wiring is necessary.

Bed No.	Date planted.	Date pegged down.	Date earthed up.	Date wired.	Date roots appeared.	Date cut from bed.	No. of rooted shoots.
22	2.10.33	2.12.33	5.1.34	9.3.34	25.4.34	26.5.34	5
		26. 5.34	22.6.34	10.7.34	18.8.34		

Other Economic Crops.

Other economic crops that have been under trial at the Central Experiment Station, Serdang, are coffee, gambier, tea and cinnamon. Success has been attained with Robusta coffee and tea, but gambier and cinnamon have not rooted. Robusta coffee has been rooted at the Agricultural Station, Bukit Mertajam, Province Wellesley.

Summary and Conclusions.

It has been found possible to propagate a large number of fruit and other economic plants by the etiolation method. Such plants as the lime, lemon, mandarin orange, guava and one or two of the Eugenias root freely, making it possible to raise a large number of plants from small beds. For others, such as the chiku, rambutan, pulasan and mango the method appears too slow and at present better results can be obtained either by marcottage, in the case of chiku, or budding, for such fruits as the rambutan, oranges, and pomelo. Further investigation is necessary, however, for by modifying the methods, it may be found possible to obtain better results. Shading and watering and/or mulching the beds during dry weather have been found beneficial to both shoot and root development, particularly in the case of pulasan and rambutan.

The stool method as used at East Malling for the propagation of apple stocks may prove more successful for some species of fruit trees, and trials on these lines are shortly to be initiated at Serdang. This method is similar to that used for the propagation of tea at Serdang (see *Malayan Agricultural Journal,* Vol. XXI, p. 310), *i.e.* plants are planted upright in rows at about one foot apart and when they have made sufficiently vigorous growth they are cut back to ground level. Shoots from these stools are earthed-up when they are about 5 to 6 inches high, and in the case of difficult subjects, they are ring-wired to induce root development.

Further investigation into the method of establishing plants after they have been rooted, is necessary. Although large numbers of rooted shoots have been obtained, a large percentage of casualties occurs after potting, due to careless watering. It has been found difficult to train the Tamil labourer in the proper use of a watering can. The bamboo joint is not the best receptacle in which to establish the shoots; earthenware pots are better for the purpose since they permit a better aeration of the root system.

It may be possible to establish certain plants in heavily shaded beds and this is being tried at Serdang, but the object is to raise plants in a cheap receptacle which will not take up too much space when packed for distribution to various parts of the country. The majority of the fruit trees are intolerant of root disturbance and, if plants are established in nursery beds, this is bound to occur unless large balls of earth are taken up with the plants when they are lifted for distribution. The most promising method is to establish plants in earthenware pots.

Upkeep of Etiolation Beds. Periodical manuring of the beds is necessary to obtain a satisfactory growth. Well-rotted cattle manure and a complete mixture of artificial fertilizers are worked into the beds after a crop of shoots have been removed. The artificial fertilizer used consists of calcium cyanamide 1

part, basic slag 2 parts, and sulphate of potash 1 part by weight. The mixture is applied at the rate of 1½ lbs. per bed, one chain long and two-and-a-half feet wide.

Pests.—Leaf-eating insects have caused considerable damage at times, but spraying with lead arsenate has kept them in check.

"White ants" have appeared in some of the beds and damage has been done to the rambutan plants. This pest enters dead or dying branches buried in the bed and in a few cases young shoots have been killed.

THE TEMERLOH RICE MILL

BY

W. C. S. CORRY, B.A. (OXON),

Malayan Civil Service. District Officer, Temerloh.

The Rice Mill at Temerloh has now been in existence for over six months, and the initial experience gained in working it may be of interest to all concerned in encouraging the cultivation of the staple food of the country.

The Mill is directed by a Committee composed of the District Officer, Temerloh (Chairman), the State Agricultural Officer, Pahang, and the Malay Agricultural Assistant, Pahang South. Che Ismail bin Haji Mohamed Salleh of the Agricultural Department has been seconded from his Department as Mill Manager. The mill is about a mile from the village of Temerloh, on a high site above the 1926 flood level, and comprises a cement drying floor; a rat-proof padi-store of about 4,500 piculs (268 tons) capacity; a garage with quarters for an engine-driver attached, and a main building containing a 30 h.p. single-cylinder Diesel engine driving the mill unit. This unit, designed by Messrs. Mackinnon & Co. Ltd. of Aberdeen, includes a polisher for the production of high-grade white rice, and its working capacity is 7 cwts. of padi per hour.

The gross amount of padi purchased between January and June of this year, when supplies practically ceased, was slightly under 2,000 piculs, (120 tons) and the milling of this meant rather less than two months of work, so that operations have been suspended, except for occasional trial runs of a few hours, since the middle of June. The best rice produced has been equal in quality to Siam No. 2, and at the price quoted by the Mill has found a ready market with local Temerloh dealers. The Committee have had the advantage in quoting prices of being able to discount transport expenses into the District, and the former import duty into the Federated Malay States. Lower grade rice, and all the incidental by-products, have also found a ready market. The problems of management therefore centre rather in the search for 'raw material' than in the sale of the finished product.

Padi was purchased at different centres throughout the District, but chiefly at the weekly Sunday Fair at Temerloh, and its price varied from $1.60 to $1.80 per picul according to the expenses of transport required to move it from its place of purchase to the Mill. Best quality rice was sold at prices varying from $5.80 to $6.50 per picul ex mill.

The amount of padi sold to the Mill so far has been disappointingly small for the reason that the statistics of the available surplus over and above the needs of the local Malay small-holder, upon which the original scheme to erect a mill was founded, were optimistically large. Harvesting in Temerloh normally takes place in December and January; estimates of the annual crop are made by the Department of Agriculture, and last year the writer, with the assistance of that Department, organized a house-to-house census of stocks.

This latter move was not a success, probably owing to the errors of the enumerators and the lack of understanding by the small-holders of even a few simple questions. The two sets of statistics finally produced differed so greatly as to show clearly that both were practically valueless. All one can say is that the annual Temerloh padi crop is somewhere between 70,000 and 150,000 piculs! (equivalent to about 4,200 to 8,400 tons). The Malay population of the District is over 25,000, and on the basis that an adult male *kampong* worker eats in rice about the annual equivalent of 3 piculs of padi, it is apparent that the lower estimate above would leave but little available surplus.

Granted, however, that the higher figure of the estimated annual harvest be more nearly correct, other factors also enter into the question. Temerloh itself is not by any means an ideal rice-growing District. Apart from the danger of floods at harvest time in the riverine Mukims, and the lack of hills from which a sure system of irrigation could originate, the rice-growing areas themselves are widely scattered throughout the District, and the means of communication between them and the Mill are difficult, especially in the case of areas down the Pahang River below Temerloh, and areas some distance away from the river itself. A successful trade in padi, which is of low monetary value, requires easy and inexpensive methods of transport. The villagers themselves are not used to trading in padi in bulk, or producing for a large market. They sell padi in small quantities by the *gantang* (gallon) for immediate consumption, to Chinese and others at weekly fairs, bringing out easily transportable quantities to satisfy their needs in cash or goods from day-to-day. As prices up to 9 cents a *gantang* could at times be obtained the Malay was somewhat averse to selling in bulk at $1.80 per picul.

There is also an old established trade in bulk between the down-river Mukims and the town of Pekan. A large portion of the crop is grown in these down-river Mukims, and in spite of the low prices reigning in Pekan, where producers are economically at the mercy of the Chinese dealers, the down-river flow of trade to Pekan is the easy and natural outlet for commodities in bulk. It is hoped that the construction of the new earth-road from Temerloh to Chenor will enable some of this trade to be captured by the Mill.

A considerable amount of padi is hoarded, and this is not unnatural when one remembers the disasters of 1926 and 1931. This hoarding should not be discouraged, and the Mill management should certainly not endeavour to eat into padi stocks that may have to be replaced by the free distribution of rice in a flood emergency. This hoarding was also encouraged and its effects accentuated by the bad harvest last season. Floods in the month of October largely ruined the crop in the valley of the Semantan River, and in the lower-lying areas in the Mukims of Jenderak and Chenor, and people who are normally producers of padi were in the market in these areas as buyers.

Propaganda of all kinds goes on apace in the District to encourage the production of larger crops now that an assured market is in existence, and with the gradual provision of better and easier means of communication within the District, one can hope that year by year the working periods of the Mill will get longer. It should not be judged a success or a failure until we have had at least five or six years' experience of running it.

CONDITIONS ON RUBBER SMALL HOLDINGS IN MALAYA.

3rd Quarter, 1935.

Prepared by the Economic Branch of the Department of Agriculture, S.S. and F.M.S., in collaboration with the Field Branch of the Department.

Rainfall.

The quarter was characterized by an exceptionally dry July, amounting to a drought in many parts of the country. The dry weather continued during the first half of August but heavy rains were experienced towards the end of that month. There was a certain amount of rainfall in September, but principally it was a hot and dry month.

Prices.

Prices paid for small-holders' rubber in several centres in each State during the quarter are shewn in Tables I and II. The former table gives the lowest and highest prices, and the second table shews the mean of the extremes.

It will be seen that there was a slight fall in prices at the end of the quarter.

Production.

Table III shews production of rubber on small holdings during the first three quarters of 1935, together with last year's figures for the purpose of comparison. The table is compiled from the monthly report of stocks, imports and exports of rubber, published by the Registrar-General of Statistics, S.S. & F.M.S.

Tapping.

The result of the quarterly survey of areas untapped on small holdings is shewn in Table IV. Estimates are obtained by counting the number of such areas, and applying the percentage to the total area of small holdings in the District.

The area out of tapping on small holdings in the Federated Malay States at the end of September, 1935, shewed only a slight increase as compared with the second quarter. The respective figures were: 145,200 acres (27.2 per cent.), 144,500 acres (27 per cent.).

There was a greater increase in the Straits Settlements where the holdings out of tapping were estimated to total 24,000 acres (20.6 per cent.) as compared with 22,000 acres (18.9 per cent.) in the previous quarter.

A large number of holdings remain untapped in view of the satisfactory price obtainable for coupons without rubber. The incidence of padi planting

Table I.

Lowest and Highest Rubber Prices Paid by Local Rubber Dealers.

(In Straits dollars per picul (133 1/3 lbs.))

3rd Quarter 1935.

	Penang	Perak	Selangor	Negri Sembilan	Pahang	Malacca	Kedah
			JULY				
Smoked sheet	22.00-25.00	22.00-25.00	22.50-25.30	22.60-25.00	21.00-25.50	22.50-24.50	22.50-25.00
Unsmoked sheet	21.50-24.30	19.00-23.50	18.00-23.50	22.00-23.60	18.00-24.00	20.00-23.00	21.00-23.50
Scrap	12.00-18.00	15.00-16.00	12.00-17.00	15 00-18.40	—	14.50-18.00	13.00-18.00
			AUGUST				
Smoked sheet	23.00-25.50	21.50-24.30	22.00-24.50	22.00-24.50	20.50-24.30	20.00-24.50	23.00-25.50
Unsmoked sheet	21.50-24.00	20.10-23.50	19.00-23.00	18.00-23.00	19.00-23.20	20.00-23.00	21.00-23.00
Scrap	13.00-17.00	—	16.00-18.00	14.00-18.40	15.00-16.00	14.50-18.00	15.00-17.00
			SEPTEMBER				
Smoked sheet	22.50-24.50	21.00-23.50	21.00-25.00	22.00-24.00	20.00-24.50	22.00-24.00	22.50-24.20
Unsmoked sheet	21.50-23.50	19.00-23.00	18.00-23.00	20.00-23.25	18.50-23.00	19.50-23.00	20.00-23.00
Scrap	13.00-17.00	—	15.00-17.00	15.00-19.00	—	14.00-18.00	13.00-17.00

Table II

Mean of Lowest and Highest Rubber Prices Paid by Local Dealers at a number of Centres in each State.

(In Straits dollars per picul (133 1/3 lbs.))

3rd Quarter 1935.

	Penang	Perak	Selangor	Negri Sembilan	Pahang	Malacca	Kedah
			JULY				
Smoked sheet	23.00-24.58	22.91-24.16	23.61-24.32	23.32-24.35	21.75-24.20	22.56-24.00	23.33-24.40
Unsmoked sheet	21.88-23.87	20.78-22.45	20.00-22.50	22.08-22.85	20.25-22.70	20.66-22.50	21.83-22.93
Scrap	13.75-16.25	15.00-16.00	14.66-15.83	16.25-17.15	—	14.83-17.50	14.83-16.50
			AUGUST				
Smoked sheet	23.76-24.93	22.98-23.77	22.87-24.12	23 04-24.17	21.52-23.35	21.83-24.16	23.66-24.76
Unsmoked sheet	22.12-23.75	21.13-22.19	20.50-21.50	20.48-22.67	20.70-22.35	20.66-22.66	21.50-22.66
Scrap	14.50-15.87	—	16.00-18.00	15.83-17.07	15.00-16.00	14.83-17.50	15.66-16.16
			SEPTEMBER				
Smoked sheet	22.76-24.00	21.87-22.94	22.05-23.57	22.21-23.15	20.78-23.17	22.33-23.50	22.83-23.90
Unsmoked sheet	21.82-23.20	20.23-21.53	19.66-21.50	20.23-21.81	19.88-22.01	19.83-22.16	21.33-22.00
Scrap	14.25-15.75	—	15.83-17.00	16.42-17.42	—	15.33-16.66	15.16-16.00

has also reduced tapping, and the Negri Sembilan report draws attention to the very heavy and profitable fruit season which has been experienced, as a probable cause of reduction in tapping.

On the other hand, high tapping is still being practised in Negri Sembilan on the older holdings where bark reserves are insufficient. It is estimated that actual tapping costs under these conditions are increased by approximately 25 per cent., and the yields may be expected to be less at 8 feet than would be the case at 4 feet with good bark.

From reports received from the recently appointed Asiatic Rubber Instructors it is evident that, while serious attempts are being made by small-holders to improve the quality of tapping, in certain districts bark consumption is excessive and wounding general. This is particularly the case in holdings which have been leased and where the tapping coolies are paid on the basis of rubber produced.

Table III.

Production of Rubber on Small Holdings.
(in tons)

	Total Jan.-Sept. 1934	1st Quarter 1935	2nd Quarter 1935	3rd Quarter 1935	Total Jan.-Sept 1935
Federated Malay States ...	79,861	16,736	17,374	19,255	53,365
Unfederated Malay States ...	61,800	16,021	13,593	13,260	42,874
Straits Settlements ...	21,525	2,867	3,432	3,941	10,240
Total ...	163,186	35,624	34,399	36,456	106,479

Conditions of Holdings.

A continued incentive to the maintenance of good sanitary conditions on small holdings is the inspection which is carried out prior to each quarter's coupon issue, and reports indicate that holdings are being kept cleared of undergrowth and *lalang* grass. Where necessary the Asiatic Rubber Instructors are pointing out the need for improvement in such conditions and are giving instruction in distinguishing between beneficial and harmful covers.

Table IV.

Estimated Acreage of Tappable Rubber which was out of Tapping on Holdings of less than 100 Acres, at the end of September, 1935.

PERAK				SELANGOR				NEGRI SEMBILAN				PAHANG			
District	Total Tappable area	Total area untapped	Percentage	District	Total Tappable area	Total area untapped	Percentage	District	Total Tappable area	Total area untapped	Percentage	District	Total Tappable area	Total area untapped	Percentage
Batang Padang	37,288	6,700	18	Klang	18,879	4,300	23	Seremban	19,241	14,000	73	Raub	7,361	700	9
Kinta	34,180	4,100	12	Kuala Langat	29,263	4,400	15	Tampin	17,947	8,800	49	Kuala Lipis	15,951	1,100	7
Kuala Kangsar	43,485	14,800	34	Ulu Langat	38,867	12,000	31	Kuala Pilah	17,470	4,700	27	Bentong	13,600	2,700	20
Upper Perak	13,774	3,200	23	Ulu Selangor	30,632	8,300	27	Jelebu	6,276	2,600	41	Other Districts†	31,223	3,800	12
Larut & Selama	51,407	6,700	13	Kuala Lumpur	21,174	5,100	24	Port Dickson	10,653	6,600	62				
Krian	9,751	6,200	64	Kuala Selangor†	9,379	2,300	24								
Lower Perak*	47,937	16,300	34												
Dindings	7,279	5,800	80												
	245,101	63,800	26		148,194	36,400	24		71,581	36,700	51		68,135	8,300	12

MALACCA				PENANG & P. WELLESLEY				SINGAPORE			
District	Total Tappable rea	Total area untapped	Percentage	District	Total Tappable area	Total area untapped	Percentage	District	Total Tappable area	Total area untapped	Percentage
Central	17,687	4,100	23	North	3,241	400	13	Singapore	12,781	1,300	10
Alor Gajah	31,387	7,500	24	Central	7,067	2,500	36				
Jasin	24,971	6,700	27	South	8,149	300	4				
				Penang	11,114	1,200	11				
	74,045	18,300	25		29,571	4,400	15		12,781	1,300	10

The percentage of areas out of tapping in June, 1935, was as follows:—Perak 23, Selangor 23, Negri Sembilan 47, Pahang 30, Malacca 22, Penang and Province Wellesley 15, Singapore 11.

*Estimated from percentage for Kuala Kangsar.

†Estimated from percentage for other Districts in the State.

On some holdings it has been noticed that spouts and tapping cups are not cleaned, and other reports speak of a lack of cleanliness, particularly during machining. Waterlogging of areas has been noticed after heavy rains, owing to insufficient drainage.

In Selangor it has been noted that tapping panels are being covered with a mixture of tar, cow-dung, and mud to effect quick bark renewal.

Diseases.

Mouldy Rot was, as usual, the disease calling for most attention during the quarter, but the exceptionally dry weather helped considerably to keep it under control. Root diseases were prevalent in some parts of Perak and in Kedah. Bad cases of soil wash were found in Perak Central and special instruction was given for its control. Black Stripe Disease was reported in Selangor and Negri Sembilan.

The Department of Agriculture continued to make sales of approved fungicides in the various States.

Grades of Rubber.

The tendency during the quarter under review appears to have been towards the manufacture of unsmoked sheet, although the reports of the Asiatic Rubber Instructors indicate that considerable interest is being evinced in the cheap form of smoke-house which they are demonstrating throughout Malaya.

Kedah.—In contrast with the second quarter, there was an increase in the production of smoked sheet except in Central Kedah, where the production of unsmoked sheet was slightly higher. The percentages of smoked and unsmoked sheet respectively were: North Kedah 79, 18; Central Kedah 46, 48; South Kedah 58, 28.

Perak.—There was an increase in the preparation of unsmoked sheet during the quarter, and in the Central Circle, where sales of smoked sheet preponderate, the latter have decreased. The percentages of smoked and unsmoked sheet respectively were: Perak North 28, 72; Krian 35, 65; Selama, nearly all smoked; Perak Central 60.75, 39.25; Perak South 33.6, 66.4.

Selangor.—Smoked sheet and scrap continue to be the most favoured grades of rubber produced in the State. A detailed investigation in the Ulu Selangor District, however, shewed that there is practically no trade at present in the higher qualities of smoked sheet, and, in the few cases where such sheet is available, local dealers often advise direct sale in Kuala Lumpur.

Penang and Province Wellesley.—As in the second quarter, there was a marked preference for unsmoked sheet, the percentages being: smoked 12, unsmoked 84, scrap 4.

Malacca.—There was a slight increase in the production of scrap in Central District, and in Jasin District there was a decrease in unsmoked sheet in favour of smoked sheet. The percentages of smoked and unsmoked sheet respectively were: Central 64, 19; Alor Gajah nil, 98; Jasin 45, 54.

Negri Sembilan.—There was a marked increase in preference for unsmoked sheet, the average percentage of the sales at nineteen centres being: smoked 39, unsmoked 58.

General.

Considerable instructional work has been carried out by the Asiatic Rubber Instructors, lectures and demonstrations having been given on correct coagulation of latex and preparation of smoked sheet, "white ant" control, tapping methods, drainage systems and disease control.

Numerous models of the cheap form of smoke-house have been erected in various parts of the country and demonstrations given as to their use. In some districts these demonstrations have aroused considerable interest, and small-holders have erected their own smoke-houses, but in other places very little enthusiasm has been shown.

A large number of leaflets in Malay and Chinese describing the construction of the smoke-house and the correct procedure for the manufacture of good quality smoked sheet has been distributed.

TWENTY-THIRD REPORT ON NATIVE RUBBER CULTIVATION IN THE NETHERLANDS INDIES.

Second Quarter, 1935*

General Survey.

Java standard sheet was quoted at Batavia on 9th April at 16 guilder cents per ½ kgm., and improved to 17½ cents on April 16th. Part of this gain in price was lost shortly afterwards, and quotations then remained for some time at about 17 guilder cents. From the middle of May the price improved and on 28th May was 19¼ cents, to fall again to 18¼ cents on 31st May. From June 5th to 20th, with but small fluctuations, the price was 19 cents, but towards the end of the month a distinct drop was experienced, so that on 27th June the price had fallen to 18 guilder cents per ½ kgm.

The average fortnightly quotations in Batavia for Java standard sheet from the first half of April to the second half of June were 16.75, 17.3, 17.1, 18.4, 18.9, 18.6.

The extraordinary export duty amounted in April and May to 16 guilder-cents per kgm.; on June 1st this was increased to 18 cents, and on June 16th a further increase was announced to 22 cents. Because of the price decline that set in during the last ten days of June, the extraordinary export duty was reduced on June 30th to 21 guilder-cents per kgm. Beginning with the change taking effect on June 16th, it was decided that any alterations in the export duty on wet rubber (group IIa and IIb), dry native sheets (group Ib), and blankets (group Ia) would become effective respectively 3 days, 2 weeks and 5 weeks after notification.

The relation between the price of medium blanket and that of standard sheet again changed in favour of the native product. Towards the beginning of the quarter under review the ratio was 88 : 100, whilst at the end of the quarter it was 95 : 100.

The quantity of native-grown rubber exported in April amounted to 13,809 metric tons, of which 4,187 tons had passed through the reprocessing mills, whilst 3,961 tons consisted of other dried rubber in sheets.

In May the quantity exported rose to 22,628 tons. This very high export figure is attributable in part to the price advance in April and May, but principally to the unloading of stocks on account of the increase in the export duty to become effective on June 1st.

The increased extraordinary export duty announced for June 16th—as well as the fact that the export duty on dry rubber imposed on June 1st only became effective later—resulted in the stocks on hand also being unloaded during June, so that the exports, 14,576 metric tons, exceeded the production.

By the end of the second quarter the native-grown rubber had exceeded its export quota for the first half of 1935 to the extent of 25,419 tons.

* Abstract from *The Netherlands Indies*, Vol. III, No. 20, October 16th, 1935.

The monthly quota for the second quarter, amounting to 9,917 metric tons, was, therefore, considerably exceeded.

The young rubber trees, which were planted in the peak years, 1925-1930, on the *ladangs* (annual hill-rice clearings) have recently or will soon come into production. These plantations are for the most part in the hands of the native agricultural population, with the result that the number of small-holders is largely increasing. This class of owner produces rubber with the aid of family members, or villagers on a profit-sharing basis, that is to say in the cheapest possible manner, and thus recently an increasing impulse to produce has become noticeable.

In addition the prevailing economic conditions have driven the natives to turn more than formerly to the production of rubber for obtaining money.

The result of these changes which are now taking place, is that the amount of native-grown rubber which will be placed on the market at a certain price level is moving in a rather steeply ascending line.

The increase of the export duty in June to a level equivalent to the difference between the world market price and a theoretical value of 8 guilder-cents, was based on the circumstances outlined above.

If the development is considered quarter by quarter, the share taken in the exports by groups Ia and Ib (*i.e. dry* rubber) will be found to increase continually. This is owing both to a greater activity in the reprocessing mills here and to the increasing production of the dried product by the natives themselves, in which connexion it may be remarked that the advance in both directions is more or less equal.

It appears that, in the quarter under review, for the first time more than one half of all native-grown rubber was exported as dry rubber. Only in Palembang, Indragiri, and Bengkalis did the wet product remain predominant.

Although Java standard sheet was still quoted in Batavia on July 1st at 18½ guilder-cents per ½ kgm., this price, in the course of but a few days, fell back to 17¾ cents, a level at which, apart from a few insignificant fluctuations, it remained for the rest of July. This lower price level must be attributed to:

1. the disappointing June consumption in the United States, amounting to no more than 36,600 long tons, as against 41,200 tons in June, 1934;
2. the accumulated surplus of export licences in Malaya;
3. the considerable shipments of native-grown rubber from the Netherlands Indies.

In the course of August the price level managed to improve somewhat and rose to 18 guilder-cents per ½ kgm., to sink again sharply in the first week of September to approximately 17½ cents per ½ kgm. The principal cause of this price decline was the large amount exported from Malaya during August. Moreover, it was doubted by many whether the world consumption in 1935 would exceed that of 1934. It was a disappointment to many that the improvement of the rubber market under the influence of restriction seems to be a much slower process than had originally been expected.

The provisional figures for July indicate an export of 7,867 metric tons of native-grown rubber (dry equivalent), of which about 75 per cent. was exported as dry rubber. The increased export duty on group Ia (the product of the remilling industry), as from July 5th, caused great quantities of such rubber to be shipped during the first few days of that month, through which the proportion of dry rubber in the total export became abnormally large. The stocks in the hands of recognised exporters increased by 1,281 metric tons.

In August the quantity exported amounted to 9,756 tons (provisional figure) of which 64 per cent. consisted of dry rubber. The stocks in the hands of recognised exporters again increased, this time by 1,255 tons.

The extraordinary export duty which had been put at 22 guilder-cents per kgm. to take effect on June 16th was reduced to 21 cents on June 30th owing to the decline in the world rubber market whilst on July 22nd it was further lowered to 20 cents per kgm.

The export figures, combined with the changes in the stocks in the hands of the recognised exporters, indicate that the large increase in the extraordinary export duty exercises a considerable influence on the production of rubber by the natives, but that it was either barely possible or quite impossible to reduce such production entirely to an amount within the export quota.

Exports of Native-grown Rubber from the Outer Islands, in metric tons (dry equivalent).

Quarter	Groups Ia + Ib (dry rubber)	Groups IIa + IIb (wet rubber)	Total	Percentage of the total	
				Ia + Ib	IIa + IIb
1934					
First	7,878	42,830	50,708	15.5	84.5
Second	13,823	53,589	67,412	20.5	79.5
Third	17,928	27,196	45,124	39.7	60.3
Fourth	9,580	13,061	22,641	42.3	57.7
1935					
First	16,271	19,820	36,091	45.2	54.8
Second	29,447	21,566	51,013	57.7	42.3

KUALA SELANGOR AGRICULTURAL SHOW.

The Kuala Selangor Agricultural Show was held on September 28th, 1935, in Kuala Selangor Town. Owing to the indisposition of H. H. the Sultan the Show was opened by the Tengku Laksemana. The Show was attended by the Acting Adviser on Agriculture and by various officers of the Agricultural, Veterinary, Co-operative, Education, and Health Departments. The competitive sections were open to exhibitors from the Sub-district of Sabak Bernam who had their own Show on July 14th. Padi was not included in the schedule since District padi competitions had already been held independently in Kuala Selangor and in Sabak Bernam earlier in the year.

Special sections were allocated to poultry and to goats. As usual in this District, the classes which achieved the highest standard were those for copra, coconut oil and other coconut products, though much of the copra was imperfectly dried. Soap was not of a very high quality. A number of entries of coconut sugar, cane sugar and locally-produced honey were of excellent quality. The standard of the poultry was not high, the birds being for the most part inferior to those shown in Ulu Selangor and Ulu Langat. The fruit section necessarily suffered somewhat from the fact that many varieties are not in season at this time of the year.

The Court House was allocated exclusively to non-competitive exhibits by the Departments of Agriculture and Health. The exhibits of the Department of Agriculture were as follows:—

(*a*)	PADI:	A winnowing machine (*perangin*). A Krian padi mill (*kisaran*).
(*b*)	COPRA:	Model kilns of good and bad type: specimens of good and defective copra.
(*c*)	COCONUT OIL:	Various implements used in the manufacture of coconut oil other than those employed normally in Kuala Selangor *i.e.* a treadle machine for grating the meat (*gerejoh*); oil presses from Pahang and Kelantan (*kampa, apitan*).
(*d*)	POULTRY:	Models of houses suitable for poultry under kampong conditions.

All the implements mentioned were shown in action and appeared to be a source of genuine interest to a number of onlookers.

The Health Department showed numerous exhibits dealing with rural hygiene and the control of malaria.

It may be noted that this is the last agricultural show of 1935, being the sixth in a series of agricultural and padi shows held throughout the State of Selangor during the year.

Reviews.

Canned and Dried Fruit Supplies in 1934.*

Prepared by the Intelligence Branch, Imperial Economic Committee. 85 pp. H.M. Stationery Office, London, 1935. Price 1s. 9d. post free.

The present volume—the fourth annual publication of its kind—is, as usual, an authoritative survey of the position regarding the import of these products into the United Kingdom as well as of the position of fruit and vegetable canning in the United Kingdom. The statistical information is brought up to the end of 1934, although most of the figures for that year are stated to be of a provisional nature. Part I of the Report deals with canned fruits and vegetables, while Part II is confined to dried fruits.

The Malayan pineapple industry is mainly concerned with the possible effect on the market of competing canned fruits. It is evident that this competition may arise from any of three sources:— (*a*) direct competition with canned pineapples from other countries; (*b*) competing imported canned fruits other than pineapples, and (c) the competition of the United Kingdom production of fresh and canned fruits.

The imports of canned or bottled fruits preserved with sugar have shewn a progressive increase for many years, and the imports in 1934 at 172,600 tons are an increase of 21,600 tons over the previous year, thus indicating that this class of product is not declining in popularity in competition with fresh and dried fruits, and preserved fruits in other forms. The Malayan share of this trade amounted to 24.7 per cent. (42,550 tons) in 1934, as compared with 23.5 per cent. in 1933, 27.8 per cent. in 1932, and 22.9 per cent. in 1931. At the same time, imports from other Empire sources also showed an increase: Australian imports from 10,500 tons in 1931 to 25,050 tons in 1934, Canadian from 1,150 tons in 1931 to 5,700 tons in 1934, and South African 500 tons in 1931 to 2,300 tons in 1934. Thus, while Malaya retains her position on the market, competing countries are increasing their share of a growing trade. Of non-Empire sources, Hawaii exported to the United Kingdom 1,340 tons in 1934 as compared with 1,230 tons in the previous year.

Elsewhere in this publication, information is given of the production over the past few years of canned pineapples in Malaya, Hawaii, Australia, South Africa and Formosa. The Hawaiian pack is now controlled to a production which is considered adequate to meet demand; on the other hand, production in all other centres shews a steady increase.

It would appear that the canning of fruit in the United Kingdom, which has made considerable strides during recent years, gained little or no new ground during 1933 and 1934, but on the other hand, it does not shew any decline in popularity. A notable feature has been an increase in England and Wales in the output of re-packed fruit salad from imported varieties of canned fruits.

* The following review of "Canned and Dried Fruit Supplies in 1934" is prepared and published by permission of the Controller of His Majesty's Stationery Office, who are holders of the copyright.

To sum up, it would appear that the Malayan canned pineapple fully maintained its position on the United Kingdom market in 1934, despite competition from other pineapple canning countries, the competition of other canned fruits, the United Kingdom canning industry, and the fresh fruit market.

The Imperial Economic Committee have conferred a valuable service on fruit growers and canners by the publication of this annual summary of information, which is issued free to subscribers of *Canned and Dried Fruit Notes* published monthly at £1 per annum post free. In this connexion, attention should also be drawn to the weekly publication of the Committee, also published at £1, which gives full information of the weekly arrivals of canned fruits and tomato products into Great Britain. The Intelligence Branch of the Imperial Economic Committee is thus organized to enable the trade to keep in very close touch with the trend of the market, and the importance of Malaya in this market warrants that local packers and exporters might with advantage subscribe to these publications.

D. H. G.

Report on the Progress of Schemes for the Improvement of Rice Cultivation.

Federated Malay States Government Press, Kuala Lumpur, 1935, 12 pp. 8 plans. Price $1 or 2s. 4d.

This official report is a tersely-stated record of the work in recent years of the Department of Agriculture and of the Drainage and Irrigation Department towards the agricultural development, drainage and irrigation of new padi areas and also towards the improvement of existing areas of padi land in the Federated Malay States.

The scientific investigations have included selection of high-yielding strains suitable for varying conditions, manurial and cultivation experiments, pest control, soil and water investigations and hybridization experiments. The field procedure is briefly described and the progress recorded.

Part II of the Report describes the drainage and irrigation schemes in progress in each State. The eight excellent plans, in colours, enable the reader to follow this account with ease.

This Report should be of interest to investigators of similar problems in other rice-growing countries, and of particular value to the technical officers concerned in the schemes and the administrative officers of the areas in which these developments are being made.

The reader will be particularly struck with the many evidences in this report of the very close collaboration which obviously exists between the technical departments concerned and the administrative branch of the service.

D. H. G.

Annual Report of the Department of Agriculture, Straits Settlements and Federated Malay States for the year 1934.

By H. A. Tempany, C.B.E., D.SC., F.I.C., F.C.S., *Director of Agriculture, Straits Settlements, and Adviser on Agriculture, Malay States. F.M.S. Government Press, Kuala Lumpur, F.M.S. 1935, 78 pp. Price 50 cents (Straits Currency) or 1s. 2d., post free.*

The report is in two parts; the first of which is a comprehensive review of areas, crops, market prices and other data of interest in connexion with agriculture in Malaya. The second part of the report is concerned with the work of the Department of Agriculture.

Agricultural services have been extended in several of the States, while in others, proposals for such services have been made and accepted by the Governments concerned. With the completion of the programmes in these States, agricultural services will have been provided for in every unit of the Malayan administration with the exception of the small State of Perlis.

The Adviser states: "In spite of retrenchment there has been no diminution in the volume of work that the Department has been called on to perform; on the contrary, the programmes of work and the demands on the Department for assistance and advice have continued steadily to expand".

Whether the reader wishes to refer to the progress of the scientific or extensional work of the Department, or to trace the advances made during the year in the commercial production of crops, he will find this Report equally valuable.

D. H. G.

Report of the Research, Economic and Agricultural Education Branches for the year 1934.

Special Bulletin, General Series No. 21, Department of Agriculture, Straits Settlements and Federated Malay States, 1935, 90 pp. Price 50 cents (Straits Currency) or 1s. 2d. post free.

The publication of the annual reports in one volume of three Branches of the Department of Agriculture, S.S. and F.M.S., follows a procedure which was commenced some years ago and has much to recommend it. The reports summarize the work of the seven Divisions of the Research Branch and also include the annual reports of the Economics and Statistics Branch and of the Agricultural Education Branch. More complete information is, therefore, given of the activities of the Department than is possible in the compass of the Annual Report of the Adviser on Agriculture.

The agriculturist in Malaya will find that much of the information contained in this volume has a very practical application; moreover, the fact that it is given in brief form and in straightforward English will recommend it to many who might otherwise lay the volume aside—unread.

D. H. G.

Report of the International Tea Committee.

1st April 1934 to 31st March, 1935.

The second annual report of the International Tea Committee, which has just been issued in respect of the control year 1934-35, ending March 31, makes rather depressing reading, and the committee admit that the decision to increase the export quota by 2½ per cent. to 87½ per cent. of the standard maximum for the past year was unduly optimistic in view of the adverse trend of prices at the tea sales and the lack of improvement in the statistical position which resulted and still exists.

In spite of this admission, it is claimed by way of explanation that the trade apparently were equally at fault, and shared the belief of the committee that a shortage of low-price tea, necessary for blending purposes, appeared probable when the percentage was fixed.

This is founded on the fact that dealers last year bought heavily from China and Formosa. Futhermore, the heavy stocks in existence at the end of 1934 and the beginning of 1935 were not due to excessive shipments from regulated countries but mainly to larger imports from unrestricted sources.

Previous calculations of the statistical position have been upset by the persistent decline in world absorption, due to economic causes, and, to narrow the gap between available supplies and consuming demand, the committee have organized propaganda campaigns in the principal markets, and also to assist in this direction the recently announced International Tea Market Expansion Board has been formed.

It is stated that, from careful estimates, potential production from areas in existence will, by 1938 when the present scheme comes to an end, be approximately 315,000,000 lb. more than the 1934 absorption. The expansion in production from countries outside the scheme is causing anxiety; it was this that wrecked rubber restriction under the Stevenson scheme. Moreover, negotiations which are proceeding with China, Japan, and Formosa for the purpose of entering into an agreement for controlling exports from these countries, have so far been without encouraging results, and it is, therefore, difficult to see how the present parties to the restriction scheme can continue to curtail production while outside sources are making every effort to increase supplies.

—*The Manchester Guardian Commercial,* Vol. XXXI
No. 792, August 23, 1935.

Departmental.

FROM THE DISTRICTS.

Compiled by the Chief Field Officer from Monthly Reports submitted by Field Officers.

October, 1935.

The Weather.

In general the weather during October was normally cooler and wet. The rainfall in most localities was about average, but was slightly deficient in Kelantan and considerably above the average in Larut District of Perak and Lipis District of Pahang. There were minor floods causing little damage in the Kuala Muda and Kulim areas in Kedah and on low-lying land adjoining the Lipis River in Pahang.

Remarks on Crops.

Padi.—The price of padi tended to rise slightly.

The timely change in the weather relieved the situation in Kedah, Province Wellesley and Krian and enabled transplanting to be practically completed and the standing crop to make good progress. In the remainder of northern Perak and most parts of the Central Circle planting has also been completed and the crop is making good growth, but in Bruas District, lack of water earlier in the year has delayed planting, as has the absence of proper water control in the Dindings. In the riverine mukims of Lower Perak District the recently planted seedling have been under water, but it is not yet known what damage has been done. In the Sungei Manik area transplanting was nearly completed and in the older-established area the plants looked well. Holdings partially cleared of timber earlier in the year were also largely planted. Water has been plentiful, but land owners have not yet constructed the bunds necessary to make the best use of it.

In Malacca planting was almost completed. The standing crop on the whole made good progress, but in certain areas damage was occasioned by floods.

In Kelantan the dry padi crop was making satisfactory growth and was expected to give a good yield. Prospects for the wet padi crop, although not bright, improved considerably with the arrival of wetter weather.

In Northern Pahang transplanting was practically completed, while in the down-river areas the crop was beginning to ripen. A fair crop is expected in these areas, but the padi has lodged badly in places. In Temerloh District harvest was commenced in the second half of the month; owing to the recent drought the crop is not expected to be good, ripening being uneven. Organized hunts of wild pigs were carried out in all mukims to protect padi and other

crops. In the riverine mukims of Pekan District the crop was ripening and fairly good yields were anticipated. In the Sungei Blat area conditions improved with the change of weather. The transplanted seedlings, which had to be dibbled into the hard soil, were becoming well established.

A self-contained rice mill with a capacity of 70 to 80 bags of rice per 12-hour working day, and a huller and polisher of smaller capacity have been erected on the outskirts of Malacca to mill padi for the cultivators and for sale to the general public.

Rubber.—Following upon the announcement of a further reduction in the exportable percentage of quota, there was a steady rise in the price of rubber, which at the end of the month had amounted to about $3 per picul as compared with the price at the end of September.

From many parts of the Peninsula reports were received of brisk business in the sale of coupons which rose in price from about $14 to about $19 per picul of export rights. The best local prices for standard smoked sheet were about $27 per picul and the prices for rubber without coupons were from $5 to $8 per picul. The tendency appears to have been for owners of holdings usually tapped by hired labour to sell their coupons and cease tapping, as being the more profitable course especially with a reduced issue of coupons. This sale of coupons, combined with wet weather conditions, has caused a considerable reduction of the number of holdings in tapping in some areas, notably in Perak, parts of Selangor and the Lipis District of Pahang. On the other hand, in the remainder of Selangor and Pahang, in Negri Sembilan and in Malacca the new coupon issue combined with the rise in price of rubber has caused an increase in the number of holdings in tapping. Extensive sale of coupons is thought to reduce the quantity of the poorer grades of rubber, since coupons are only bought to cover standard smoked sheet.

Four rubber smoke cabinets were in use in Penang Island. Two erected in Batang Padang District were producing second quality smoked sheet, two others recently built were not yet working. In Ulu Langat two were in use and produced sheet of standard quality, while a third was being constructed. One cabinet in Kuala Langat District was not in use, as the holding was not in tapping.

Coconuts.—The price of copra again rose during the month to a maximum of $5.50 per picul in Penang, although it fluctuated considerably from time to time. In most localities there was a corresponding rise in the price of nuts, the rise being most marked in Province Wellesley, owing to competition between Chinese and Malay buyers and to the export trade in fresh nuts to Burma. This competition has encouraged the harvesting of unripe nuts. In Krian three out of the four improved kilns were working, but a seasonal decline in nut yield prevented full advantage being taken of the rise in price. In Bagan Datoh the quality of the copra handled by dealers showed a small improvement in respect of nut selection, but imperfect drying had a serious effect on the

price offered to small-holders, since conditions rendered sundrying almost impossible. In Selangor the rise in price led to increased production of copra with little change in quality. A number of small unimproved kilns sprang up in Klang District, while in Kuala Langat District production was recommenced on certain crude kilns that had been out of action for some time. In Pahang the improved kiln at Kuala Pahang was fully employed throughout the month and produced copra fetching an average price of $4.95 per picul in Singapore. A new brick kiln at Tanjong Medan was completed.

Fruits.—Tree fruits have mostly been out of season, but in Kelantan dukus and langsats were on sale in very large quantities and durians were still obtainable, while in Negri Sembilan dukus and langsats were available in small numbers. In the same State additional areas totalling 180 acres have recently been planted with pineapples and bananas. The importance of the banana trade to the State is indicated by the fact that from the Seremban District alone some 2,000 piculs of fruit were exported during the month. It is also reported that large quantities of bananas have been produced in Kuantan District of Pahang and sold in the local markets.

Agricultural Stations and Padi Test Stations.

Work on all Padi Test Stations proceeded normally under favourable conditions and transplanting was completed on all but a few of them. Up to the present there have been no reports of serious damage to the crops by insect pests, rats or floods.

On the Agricultural Stations suitable weather conditions assisted work on the replanting of annual crops and the supplying of permanent crops. Good progess was made in the preparation of the new Ayer Itam Station in Penang and planting was commenced on the new Raub Station in Pahang and the new Telok Datoh Station in Selangor. Two acres of high land at the Ampang Tinggi Padi Station in Negri Sembilan have now been cleared, fenced and planted with a number of fruit trees.

There was an outbreak of bagworms, probably *Clania variegata* Sn., on Gliricidia shade trees and tea bushes below them at the Bukit Mertajam Station in Province Wellesley. The attack was controlled by hand-picking the insects and banding the trunks of the shade trees with a mixture of castor oil and damar. Fruit trees at this Station have improved in foliage since the cover crop under them has been removed. This improvement supports the theory that the cover crop served to harbour the leaf-eating beetles which previously caused almost continuous defoliation of the fruit trees. At Selama Agricultural Station a ground beetle damaged chiku shoots in the etiolation beds.

Agricultural Instruction.

By the courtesy of the manager, a demonstration of the latest type of copra kiln and the method of preparing special grade copra on it was given on an estate in Province Wellesley to the members of the Malay Copra Kiln Owners' Association. This was much appreciated.

A demonstration of the work in progress at the Lenggong Padi Test Station was given to a party of headmen from Upper Perak District and was attended by the District Officer and the Assistant District Officer. After the demonstration talks were given on rat control and on improved poultry housing.

A party of Malays from Bentong spent two days visiting, at their own expense, the Central Experiment Station, Serdang, the Government Plantation, Kuala Lumpur, the Cheras Agricultural Station and some adjoining fruit orchards. Much interest was shown by all members of the party some of whom took back with them planting material and budwood.

Two ploughmen from Malacca gave demonstrations of the use of buffalo ploughs on padi land in various parts of the Temerloh District of Pahang. These demonstrations aroused much interest among local padi planters, of whom 598 in all attended.

The Rural Lecture Caravan toured Negri Sembilan during the month, except for the period 8th to 17th when bright moonlight interfered with outdoor displays of films. Attendances are reported to have been good.

Poultry.

The Head Master of the English School at Bukit Mertajam has inaugurated poultry keeping by the school boys who are made responsible for the care of a flock of eleven half-bred Rhode Island Red hens and a pure bred Rhode Island Red cock. The boys have taken a keen interest in this useful line of instruction. Poutry keeping at certain vernacular schools in different parts of the country made good progress.

The outbreak of poultry disease reported from Selama in September was diagnosed as diphtheritic stomata pharyngitis. Some young birds at the Kuala Kangsar Station became infected with fowl pox. They were isolated and treated with carbolated vaseline and the infected pen was limed. There was an outbreak of poultry disease at Banir in Batang Padang District, which was believed to be fowl cholera.

Pigs.

Prohibition of the import of pigs from Siam caused a brisk demand on the Kinta markets and a shortage of supplies. In consequence, there has been a considerable export of live pigs from Selangor to Perak, the difference between the prices in the two States being such as to render this trade profitable. It is reported that towards the end of the month as many as five lorry loads of pigs were being sent to Perak daily. As a result of this trade and of the regulations restricting imports from other countries the price of live pigs in Selangor rose during the month from $14.50 to $19 per picul.

DEPARTMENTAL NOTES.

Visits of the Adviser on Agriculture.

The Adviser on Agriculture paid an offical visit to Singapore on 17th and 18th September for the purpose of conferring with officials and unofficials, and of inspecting Departmental undertakings.

From 29th October to 2nd November he visited Lower Perak and Cameron Highlands. In the course of his tour he inspected the Sungei Manik padi area, the Bagan Datoh coconut area, the Experiment Station at Tanah Rata, and Boh Plantations. He also discussed questions of agricultural policy with administrative and Departmental officers.

Vegetable Oils Section of the United Planting Association of Malaya.

His Excellency the Governor has approved the appointment of the Chief Field Officer to represent the small-holders on the Committee of the Vegetable Oils Section of the United Planting Association of Malaya.

Visit to Labuan.

The Agricultural Officer, Singapore, made a visit to Labuan between August 17th and September 17th, 1935. He reports progress in the agricultural services in this area, which has been rendered possible by the appointment of a Subordinate Malay Officer who has been trained at the School of Agriculture, Malaya, and at Malacca.

Progress is reported in the development of a combined Agricultural Station and Padi Test Plot, the control of pests and diseases, the inauguration of the first school garden, the supply of planting material, dissemination of advice on agricultural matters and the collection of information regarding local conditions.

Appointment.

H.H. Tunku Yacob bin Sultan Abdul Hamid, B.A. (Camb.) has been appointed by the Kedah Government to act as Principal Agricultural Officer, Kedah, with effect from 18th May to 31st December, 1935. It has been further decided that as from 1st January, 1935, this officer will be confirmed in the above appointment.

Retirement of Lt.-Col. B. J. Eaton, O.B.E.

Lt.-Colonel B. J. Eaton, O.B.E., Agricultural Chemist, retired from Government service on 1st November, 1935.

It will be remembered that Lt.-Colonel Eaton was seconded to the Rubber Research Institute of Malaya on 1st November, 1926, as Head of the Chemical Division. He became acting Director of the Institution on 27th July 1929, and was confirmed in the appointment on 1st November 1930, a post which he continues to fill.

Retirement of Mr. W.N. Sands.

A well-merited note of appreciation of the services of Mr. W. N. Sands to the State of Kedah is contained in the Annual Report on the Social and Economic Progress of the People of the State of Kedah for the year 1353 A.H. The British Adviser to the Kedah Government (The Hon'ble Mr. J. D. Hall) states :

> "The State owes a deep debt of gratitude to Mr. W. N. Sands, who came from the Agricultural Department of the Federated Malay States at an age, though his energy and appearance denied his years, when most officers retire (a few very unwillingly) to organize the Agricultural Department, and remained until shortly before his 60th birthday to sign his report for 1353, which forms the basis of most of the agricultural section of this report. To his great experience as a Field Officer he added his expert knowledge as a Botanist, an ideal combination for this State and especially for the means of livelihood—padi cultivation—of the bulk of its Malay population. The full benefit of his work, especially in connection with selection, will only be felt in the future, but he remained long enough to see actual results and to know that even they are only in the nature of a 'first instalment'."

Mr. W. N. Sands, F.L.S. retired from the Federated Malay States service in 1930 on reaching the age limit, and from the post of Principal Agricultural Officer, Kedah, on 17th May, 1935.

Leave

Mr. G. D. P. Olds, Agricultural Officer, Singapore, has been granted 7 months and 18 days full-pay leave from 25th October to 11th June 1936.

Mr. V. Dawson, Senior Lecturer, School of Agriculture, Malaya, returned from leave on 3rd November, 1935.

Statistical.

MARKET PRICES.

October, 1935.

Rubber.—There was a marked improvement in this market during the month, spot loose opening in Singapore at 19 3/8 cents per lb. and closing at 22½ cents. The Singapore average price for No. 1 X. Rubber Smoked Sheet for October was 20.78 cents per lb. as compared with 18.89 cents in September. The average price in London for the month was 6.12 pence per lb. and in New York 12.54 cents gold per lb. as compared with 5.50 pence and 11.50 cents gold in September.

Prices paid for small-holders' rubber at three centres during the month are shewn in the following table.

Table I.
Weekly Prices Paid By Local Dealers for Small-Holders' Rubber, October, 1935.

(Dollars per Picul.)

Grades.	Kuala Pilah, Negri Sembilan.				Kuala Kangsar, Perak.				Batu Pahat, Johore.	
	3	10	17	24	2	9	16	23	2	16
Smoked sheet	23.00		25.00		23.40	23.13	25.10	25.00		
Unsmoked sheet	22.35	22.97	24.00	24.68	21.32				21.06	24.14
Scrap			20.00							

Transport by F. M. S. R. lorry service Kuala Pilah to Seremban 12 cents per picul, to Malacca excluding duty, 25 cents per picul, by rail Seremban to Penang $1.24 per picul, Seremban to Singapore $8.00 per ton.

Transport from Batu Pahat to Singapore by lorry excluding duty, 90 cents per picul.

Transport from Kuala Kangsar to Prai by railway $6.20 per ton.

Transport from Kuala Kangsar to Singapore by railway $10.00 per ton (minimum consignment 5 tons).

At Kuala Pilah the standard deduction for moisture in unsmoked sheet is 5 per cent.

At Kuala Kangsar the standard deduction for moisture in unsmoked sheet is 10 per cent

No purchases at Batu Pahat on the 9th, 23rd and 30th October, and at Kuala Kangsar on the 30th October.

Palm Oil.—There was a considerable rise in the market for the Malayan commodities as is shewn in the following table:

Table II.

Prices of Palm Oil and Palm Kernels.

Date 1935.	Palm Oil in Bulk, c i.f landed weight Liverpool/ Halifax.	Palm Kernels, c.i.f. landed weight London/ Continent
	per ton	per ton
Oct. 4	19. 0. 0	8. 10. 0
,, 11	21. 0. 0	9. 10. 0
,, 18	21. 5. 0	10. 5. 0
,, 25	20. 10. 0	9. 15. 0

Copra.—The market continued its steady improvement throughout the month with occasional slight setbacks. The sun-dried grade opened at $4.20 per picul, rising to $5.10 on the 10th and 11th October; thereafter the price fell slightly but recovered to $5.25 on the 22nd: after a further slight weakening the grade closed on a rising market at $5.10 per picul. The average for the month was $4.91 per picul as compared with $3.98 in September. The mixed quality shewed a similar improvement, the month's average price being $4.41 per picul as compared with $3.55 in September.

Copra cake improved again slightly, and averaged $1.66 per picul as compared with $1.56 in September.

Rice.—The average wholesale prices of rice per picul in Singapore for September were as follows:—Siam No. 2 (ordinary) $4.29, Rangoon No. 1 $3.72, Saigon No. 1 $3.77, as compared with August corresponding prices of $4.05, $3.65 and $3.62. The September, 1934, respective prices were $3.39, $3.30 and $3.30.

The average retail market prices in cents per gantang of No. 2 Siam rice were:—Singapore 32, Penang 26, Malacca 29, as compared with 32, 23 and 29 respectively in August.

The average declared trade value of imports of rice in September was $3.59 per picul, as compared with $3.72 in August and $3.76 in July.

Padi.—The Government Rice Mill at Bagan Serai continued to pay $2 per picul for padi, and the privately-owned mill at Parit Buntar paid $2 to $2.30 per picul. Retail prices per gantang ranged from 6 to 16 cents.

Tea.—Six consignments of Malayan tea were sold on the London market during October. One consignment, of highland tea, was sold for 1s. 1d. per lb., while the remaining consignments averaged from 11½d. to 1s.0d. per lb.

Average London prices per lb. during October for tea consignments from other countries were as follows: Ceylon 1s. 4.54d., Java 1s. 0.76d., Indian Northern 1s. 3.48d., Indian Southern 1s. 0.72d., Sumatra 10.63d.

The latest Colombo average prices available are quoted from the *Weekly Tea Market Report,* 29th October, 1935, of the Colombo Brokers' Association, and are in rupee cents per lb.; they are: High Grown Teas 78 cents, Medium Grown Teas 70 cents, Low Grown Teas 66 cents.

Tuba Root (*Derris*).—The Singapore market was very quiet during October and there was no change in the previous month's prices. Average prices were: $51 per picul for roots sold on rotenone content; $37 per picul for roots sold on a basis of ether extract; and $25 per picul for non-Malayan roots.

Coffee.—Prices in Singapore improved still further during October. Sourabaya coffee averaged from $13.25 to $14.25 per picul, depending upon quality, and Palembang coffee averaged $7.50 as compared with $6.94 in September.

Prices of locally grown coffee ranged from $14 to $32 per picul.

Arecanuts.—Prices weakened in Singapore during October. Average prices per picul were:—Splits $4.37 to $6.94, Sliced $9.25 to $11.19, Red Whole $5 to $6.94, the prices in each range depending upon quality.

The Singapore Chamber of Commerce average prices per picul were:—Best $7.45, Medium $6.95, Mixed $6.12.

Gambier.—Both Block and No. 1 Cube advanced 50 cents per picul to average $6 and $10 per picul respectively as compared with $5.50 and $9.50 in September.

Pineapples.—A scarcity of fruit in addition to increased buying demand enabled the Packers' Combine to advance prices steadily throughout October. The fixed prices per case at the close were: Cubes $4.07½, Sliced Flat $3.75, Sliced Tall $4, with averages for the month of $3.95, $3.69 and $3.95 respectively. The September prices were $3.45, $3.25 and $3.60.

Fresh fruit prices per 100 in Selangor ranged from 70 cents to $2.50. In Johore prices were: 1st quality $2.90 to $4.50; 2nd quality $2.50 to $3; 3rd quality $1.50 to $2.75.

Tapioca.—There was a substantial rise in Singapore prices during the month and average prices per picul were:—Flake Fair $5.62, Seed Pearl $5.94, Medium Pearl $6.88, as compared with $4.12, $5.40 and $6 respectively in September.

Sago.—This commodity also improved in price, average prices per picul being: Pearl, Small Fair $4.50, and Flour, Sarawak Fair $2.96, as compared with $3.70 and $2.40 respectively in September.

Mace.—Prices in Singapore continued to advance during October; Siouw averaged $117.50 per picul and Amboina $63.75 as compared with $92.50 and $57 respectively in the previous month.

Nutmegs.—The general advance in prices applied to this market also, and 110's improved to average $34.75 per picul and 80's $35.75 per picul, as against $28 and 29 per picul respectively in September.

Pepper.—A certain amount of buying demand forced prices up, but they weakened again at the close; average Singapore prices per picul were: Singapore Black $10.62, Singapore White $18.62, Muntok White $19.50. September average prices were $8.94, $16.62 and $17.50 respectively.

Cloves.—Nominal quotations for Zanzibar and Amboina rose to $38 per picul as compared with $35 in September.

Cardamoms.—Green cardamoms were quoted during October in the Ceylon Chamber of Commerce weekly reports at 95 rupee cents to R. 1.05 per lb. rising to R. 1.05 to R. 1.20 per lb.

Tobacco.—There was considerable variation in prices for locally-grown tobacco, and the following are the ranges (per picul): 1st quality $20 to $58; 2nd quality $12 to 50; 3rd quality $7 to $30.

The above prices are based on London and Singapore daily quotations for rubber; on the Singapore Chamber of Commerce Weekly Reports for the month and on other local sources of information. Palm oil reports are kindly supplied by Messrs. Guthrie & Co. Ltd., Kuala Lumpur; the Singapore prices for coffee and arecanuts by the Lianqui Trading Company of Singapore, and tuba prices by Messrs. Mackay & Co., Singapore.

1 picul = 133⅓ lbs. The Dollar is fixed at two shillings and four pence.

Note.—The Department of Agriculture will be pleased to assist planters in finding a market for agricultural produce. Similar assistance is also offered by the Malayan Information Agency, 57, Charing Cross, London, S.W.1.

GENERAL RICE SUMMARY.*

September, 1935.

Malaya.—September imports of foreign rice were 61,828 tons, and exports 14,574 tons; net imports were accordingly 47,254 tons. The total of net imports for the period January to September, 1935, was 353,470 tons, as compared with 352,586 tons in 1934. †

Of the September imports, 52 per cent. were consigned to Singapore, 17 per cent. to Penang, 7 per cent. to Malacca, 17 per cent. to the Federated Malay States, and 7 per cent. to the Unfederated Malay States. Of the total, 58 per cent. came from Siam, 31 per cent. from Burma, 10 per cent. from French Indo-China, and 1 per cent. from other countries.

Of the exports during September, 68 per cent. were consigned to the Netherlands Indies, and 32 per cent. to other countries. The various kinds of rice exported were: Siam 10,883 tons (74.7 per cent.), Burma 2,418 tons (16.6 per cent.), French Indo-China 1,081 tons (7.4 per cent.), parboiled rice 64 tons (0.4 per cent.), local production 128 tons (0.9 per cent.).

India and Burma.—Foreign exports for the first eight months of the year totalled 1,325,000 tons, an increase of 18.2 per cent. as compared with 1,121,000 tons in 1934. Of the 1935 exports 4.3 per cent. were to the United Kingdom, 10.9 per cent. to the Continent of Europe, 22.8 per cent. to Ceylon, 32.2 per cent. to the Straits Settlements and the Far East, and 29.8 per cent. to other countries. The relative 1934 percentages were: 9.5, 19.4, 23.2, 18.9 and 29.0.

Burma's total exports of rice and bran (*Bangkok Times,* 30th September, 1935) from 1st January to 31st August, 1935, aggregated 2,681,641 metric tons, as compared with 3,085,275 metric tons in 1934, a decrease of 13.1 per cent.

Siam.—August exports of rice and rice products from Bangkok were 112,707 tons, the cumulative total for the year being 995,894 tons as compared with 1,183,775 tons in 1934. The 1935 figures are provisional.

Japan.—According to the *Trans-Pacific Journal,* 5th September, 1935, this year's rice crop is estimated at 8,835,900 tons, an increase of 21.5 per cent. as compared with the actual 1934 crop of 7,271,000 tons.

French Indo-China.—Entries of padi into Cholon during the first nine months of the year totalled 1,418,347 metric tons, an increase of 13.8 per cent. as compared with 1934. Exports of rice for the same period were 1,462,891 metric tons, an increase of 28.1 per cent.

The Netherlands Indies.—According to the *Netherlands Indies Economic Bulletin,* 1st September, 1935, the area under padi harvested during the first half year of 1935 was 7,158,060 acres as compared with 6,908,590 acres in 1934.

Imports of rice into the Netherlands Indies during the first half year

* Abridged from the Rice Summary for September, 1935, compiled by the Department of Statistics, Straits Settlements and Federated Malay States.

† It is to be understood throughout the summary that all comparisons and percentage increases or decreases are in relation to the corresponding period of 1934.

totalled 242,200 metric tons as compared with 87,600 metric tons in 1934.

Ceylon.—Imports for the first nine months of the year amounted to 396,122 tons, an increase of 10.2 per cent. as compared with 359,577 tons in 1934.

Of these imports 12.6 per cent. were from British India, 67.9 per cent. from Burma, 0.9 per cent. from the Straits Settlements, and 18.6 per cent. from other countries. The corresponding percentages for 1934 were: 14.5, 62.9, 1.1 and 21.5.

Europe and America.—Shipments to Europe from the East during the period 1st January to 12th September totalled 649,057 tons, a decrease of 31.2 per cent. as compared with 1934.

Of these shipments 48.4 per cent. were from Burma, 3.7 per cent. from Japan, 41.2 per cent. from Saigon, 5.1 per cent. from Siam, and 1.6 per cent. from Bengal. The 1934 corresponding percentages were: 38.3, 5.0, 45.1, 9.4 and 2.2.

Shipments for the Levant for the period 1st January to 29th August were 24,619 tons, an increase of 7.5 per cent. as compared wth 1934.

Shipments for Cuba, West Indies and America from 1st January to 16th August were 171,032 tons, an increase of 33.6 per cent.

MALAYAN AGRICULTURAL EXPORTS, SEPTEMBER, 1935.

PRODUCT.	Net Exports in Tons.				
	Year 1934.	Jan-Sept. 1934	Jan-Sept. 1935	September 1934	September 1935
Arecanuts ...	27,336	23,023	16,032	1,056	1,751
Coconuts, fresh † ...	100,804†	72,366†	78,958†	7,270†	8,714†
Coconut oil ...	25,485	18,348	24,569	2,081	3,309
Copra ...	95,599	66,676	77,964	6,151	7,951
Gambier, all kinds ...	2,170	1,598	2,068	151	299
Oil cakes ...	11,273	8,255	7,378	945	1,905
Palm kernels ...	3,196	2,077	2,592	191	200
Palm oil ...	15,852	10,239	16,796	1,515	2,956
Pineapples canned ...	66,634	56,837	55,369	2,973	3,419
Rubber ¶ ...	479,371¶	351,881¶	292,143¶	42,097¶	27,353¶
Sago,—flour ...	10,403	5,560	6,510	814	1,763
„ —pearl ...	5,058	3,551	3,479	436	366
„ —raw ...	7,079*	4,736*	5,149*	615*	584*
Tapioca,—flake ...	5,761	4,939	1,432	323	151
„ —flour ...	1,842*	1,476*	531*	160*	112*
„ —pearl ...	15,770	12,077	13,019	1,349	1,508
Tuba root ...	481	422	430	40½	33

† hundreds in number. * net imports. ¶ production.

MALAYAN PRODUCTION (IN TONS) OF PALM OIL AND KERNELS

(As declared by Estates)

Period.	Palm Oil		Palm Kernels	
	F.M.S.	U.M.S.	F.M.S.	U.M.S.
January, 1935 ...	1,062.3	339.3	174.0	49.6
February „ ...	977.4	220.9	161.7	38.5
March „ ...	1,104.3	334.2	172.6	48.6
April „ ...	1,008.2	328.0	151.2	40.4
May „ ...	1,077.1	461.8	158.6	63.1
June „ ...	1,311.0	724.1	200.9	105.5
July „ ...	1,901.2	729.0	255.3	109.0
August „ ...	2,331.5	777.9	345.5	120.0
September „ ...	2,080.0	607.4	231.3	87.7
Total ...	12,853.0	4,522.6	1,851.1	662.4
Total Jan. to Sept., 1934 ...	9,270.2	3,287.3	1,487.1	606.8
Total at end of 1934 ...	12,965.0	4,510.0	2,013.0	795.0

MALAYA RUBBER STATISTICS

ACREAGES OF TAPPABLE RUBBER NOT TAPPED ON ESTATES OF 100 ACRES AND OVER, FOR THE MONTH ENDING 30TH SEPTEMBER, 1935.

STATE OR TERRITORY	Acreage of Tappable Rubber end 1934	ESTATES WHICH HAVE ENTIRELY CEASED TAPPING		ESTATES WHICH HAVE PARTLY CEASED TAPPING (*a*)		AREA OF TAPPABLE RUBBER NEVER BEEN TAPPED		Total (3) + (5)	Percentage of (9) to (2)
		Acreage	Percentage of (3) to (2)	Acreage	Percentage of (5) to (2)	Acreage	Percentage of (7) to (2)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
STRAITS SETTLEMENTS :—									
Province Wellesley	44,691	864	1.9	13,321	29.8	830	1.9	14,185	31.7
Malacca	123,793	2,515	2.0	28,030	22.6	3,500	2.8	30,545	24.6
Penang Island	2,593	...	...	368	14.2	134	5.2	368	14.2
Singapore Island	33,312	4,030	12.1	7,652	23.0	694	2.1	11,682	35.1
Total S.S. ...	204,389	7,409	3.6	49,371	24.2	5,158	2.5	56,780	27.8
FEDERATED MALAY STATES :—									
Perak	295,895	11,286	3.8	54,094	18.3	12,956	4.4	65,380	22.1
Selangor	345,100	12,103	3.5	52,090	15.1	13,032	3.8	64,193	18.6
Negri Sembilan	258,381	13,148	5.1	41,690	16.1	14,699	5.7	54,838	21.2
Pahang	75,912	12,626	16.6	20,500	27.0	12,851	16.9	33,126	43.6
Total F.M.S. ...	975,288	49,163	5.0	168,374	17.3	53,538	5.5	217,537	22.3
UNFEDERATED MALAY STATES :—									
Johore	417,633	21,539	5.2	64,061	15.3	36,689	8.8	85,600	20.5
Kedah	199,180	3,880	1.9	22,423	11.3	19,349	9.7	26,303	13.2
Kelantan	28,891	403	1.4	9,105	31.5	5,359	18.5	9,508	32.9
Trengganu (*b*)	4,643	Nil	Nil	15	0.3	5	0.1	15	0.3
Perlis (*c*)	1,206	Nil	Nil	256	21.2	163	13.5	256	21.2
Brunei	(*d*) 4,991	Nil	Nil	1,702	34.1	852	17.1	1,702	34.1
Total U.M.S. ...	656,544	25,822	3.9	97,562	14.9	62,417	9.5	123,384	18.8
TOTAL MALAYA ...	1,836,221	82,394	4.5	315,307	17.2	121,113	6.6	397,701	21.7

Notes :—(*a*) Area out of tapping on Estates which have partly ceased tapping refers to areas definitely being rested and excludes areas on any tapping round.
(*b*) Registered Companies only.
(*c*) Rendered quarterly.
(*d*) Acreage of tappable rubber on 1st May, 1934.

MALAYA RUBBER STATISTICS — TABLE I

STOCKS, PRODUCTION, IMPORTS AND EXPORTS OF RUBBER, INCLUDING LATEX, CONCENTRATED LATEX AND REVERTEX, FOR THE MONTH OF SEPTEMBER, 1935, IN DRY TONS.

State or Territory	Stocks at beginning of month 1			Production by Estates of 100 acres and over		Production by Estates of less than 100 acres estimated 2		Imports				Exports including re-exports				Stocks at end of month			Consumption 3	
	Ports	Dealers	Estates of 100 acres and over	during the month	January to Sept inclusive 1935	during the month	January to Sept. inclusive 1935	during the month		Jan. to Sept. inclusive 1935		during the month		Jan. to Sept. inclusive 1935		Ports	Dealers	Estates of 100 acres and over	during the month	January to Sept. inclusive 1935
								Foreign	From Malay States & Labuan	Foreign	From Malay States & Labuan	Foreign	Local	Foreign	Local					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
MALAY STATES :—																				
Federated Malay States ...	...	8,526	10,536	10,772	101,471	3,870	53,365	Nil	Nil	17	Nil	13,256	1,704	*128,104 †116,154	35,210	...	7,017	11,719	8	82
Johore ...	...	2,259	3,952	4,159	37,334	1,131	28,718	Nil	12	Nil	143	2,954	3,251	23,233	41,869	...	1,144	4,164	...	...
Kedah ...	...	339	2,393	2,656	23,265	596	8,345	Nil	Nil	Nil	Nil	1,326	1,542	13,631	16,631	...	126	2,990	...	...
Perlis ...		21	12	7	97	33	161	Nil	Nil	Nil	Nil	Nil	39	Nil	263	...	22	12	...	...
Kelantan ...	...	410	273	415	3,019	150	3,914	Nil	Nil	Nil	Nil	182	511	1,528	5,184	...	227	328	...	...
Trengganu ...	...	55	50	273	2,446	137	1,224	Nil	Nil	Nil	Nil	Nil	410	Nil	3,670	...	55	50	...	...
Brunei	...	16	37	57	449	48	512	...	...	...	...	...	113	...	942	...	4	41	...	...
Total Malay States	...	11,626	17,253	18,339	168.081	5,965	96,239	Nil	12	17	143	17,718	7,570	166,496	103,769	...	8,595	19,304	8	82
S. SETTLEMENTS :-																				
Malacca ...	...	2,250	1,263	1,124	11,454	573	5,827	Nil		Nil		2,919		24,159		...	1,839	1,378	...	...
Province Wellesley	...	1,418	482	421	4,322	285	2,167	Nil		Nil		8,633		67,309		...	1,619	529	...	...
Penang ...	4,453	7,555	13	17	149	152	923	1,776	10,059	19,328	103,635		Nil		Nil	2,267	6,524	9	...	...
Singapore ...	5,912	28,562	203	166	1,658	287	1,188	8,510		117,107		21,977		203,112		2,483	22,598	171	36	358
Labuan	...	33	Nil	Nil	Nil	24	135	79		789		Nil		Nil		...	45	Nil	...	...
Total Straits Settlements	10,365	39,818	1,961	1,728	17,583	1,321	10,240	10,365	10,059	137,224	103,635	33,529	Nil	294,580	Nil	4,750	32,625	2,087	36	358
TOTAL MALAYA	10,365	51,444	19,214	20,067	185.664	7,286	106.479	10,365	10,071	137,241	103,778	51,247	7,570	461,076	103,769	4,750	41,220	21,391	44	440

*Ocean shipments from Malaya of rubber directly consigned from the F.M.S. † Exports of rubber from the F.M.S.

TABLE II
DEALERS' STOCKS, IN DRY TONS 3

Class of Rubber	Federated Malay States	S'pore	Penang	Province We'sly D'dings M'cca.	Johore	Kedah
22	23	24	25	26	27	28
DRY RUBBER	6,329	21,427	5,977	3,359	1,007	73
WET RUBBER	688	1,171	547	148	134	53
TOTAL ...	7,017	22,598	6,524	3,507	1,144	126

TABLE III
FOREIGN EXPORTS

PORTS	For month	January to Sept. 1935
29	30	31
Singapore ...	33,038	303,387
Penang ...	12,202	104,595
Port Swettenham	5,479	49,693
Malacca ...	528	3,401
MALAYA ...	51,247	461,076

TABLE IV
DOMESTIC EXPORTS 4

AREA	For month	January to Sept. 1935
32	33	34
Malay States ...	25,288	258,014
Straits Settlements	3,063	26,592
MALAYA ...	28,351	284,606

Notes:—

1. Stocks on estates of less than 100 acres and stocks in transit on rail, road or local steamer are not ascertained.
2. The production of estates of less than 100 acres is estimated from the formula: Production + Imports + Stocks at beginning of month = Exports + Stocks at end of month. + Consumption, *i.e.*, Column [7] = Columns [13] + [14] + [17] + [18] + [19] + [20] − [2] − [3] − [4] − [5] − [9] − [10]. For the Straits Settlements the production of estates of less than 100 acres is represented by sales or exports as shown by cess paid.
3. Dealers' stocks in the Federated Malay States are reduced to dry weights by the following fixed ratios: unsmoked sheet, 15% wet sheet, 25% scrap, lump, etc., 40%; stocks elsewhere are in dry weights as reported by the dealers themselves.
4. Column (33) and (34) represent exports of rubber subject to regulation which, for Singapore and Penang Islands are represented by sales or exports as shown by cess paid.
5. All statements are brought up to date monthly, and any inaccuracies that may be disclosed are corrected in the totals; the latest publication, therefore, is always the most reliable.
6. The above, with certain omissions, is the Report published by the Registrar-General of Statistics, S.S. and F.M.S., at Singapore on 23 October, 1935.

METEOROLOGICAL SUMMARY, MALAYA, SEPTEMBER, 1935.

Locality.	Air Temperature in degrees Fahrenheit							Earth Temperature		Rainfall								Bright Sunshine.		
	Means of			Absolute Extremes									Number of days.							
	A. Max.	B. Min.	Mean of A and B.	Highest Max.	Lowest Min.	Lowest Max.	Highest Min.	At 1 foot	At 4 feet	Total.		Most in a day. Amt.	Precipitation .01 in or more	Precipitation, .04 in or more	Thunder-storm	Fog morning obs.	Gale force 8 or more	Total.	Daily Mean.	Per cent.
	°F	°F	°F	°F	°F	°F	°F	°F	°F	in.	mm.	in.						Hrs.	Hrs.	
Railway Hill, Kuala Lumpur, Selangor ...	90.5	71.0	80.7	94	68	80	74	83.6	84.5	5.93	150.6	1.93	11	9	3	3	1	189.35	6.31	52
Bukit Jeram, Selangor ...	88.9	71.9	80.4	91	69	83	74	84.3	85.9	2.41	61.2	1.06	7	5			1	222.45	7.41	61
Sitiawan, Perak ...	89.6	72.9	81.3	92	70	85	75	84.6	85.1	5.71	145.0	2.43	13	7	1			201.60	6.72	55
Temerloh, Pahang ...	90.3	71.2	80.7	94	66	87	74	85.0	86.1	8.86	225.0	3.46	11	9	5	4		200.40	6.68	55
Kuala Lipis, Pahang ...	89.3	70.7	80.0	93	68	84	73	83.6	84.4	6.30	160.0	2.66	13	9	2	25		186.30	6.21	51
Kuala Pahang, Pahang ...	87.1	73.3	80.2	92	71	85	77	86.7	86.9	3.36	85.3	1.56	10	8	1	1	2	219.75	7.33	61
Kallang Aerodrome, S'pore ...	86.9	76.8	81.9	89	72	80	81	82.6	83.4	4.03	102.4	1.20	10	10	2			218.00	7.27	60
Butterworth, Province Wellesley ...	87.5	74.1	80.8	90	70	84	81	84.5	85.1	3.67	93.2	1.20	12	6			1	178.10	5.94	49
Bayan Lepas Aerodrome, Penang ...	87.5	74.4	80.9	90	71	85	82	84.5	84.6	6.56	166.6	1.79	14	10	1			186.45	6.21	52
Bukit China, Malacca ...	84.8	73.6	79.2	88	71	79	81	82.9	83.4	8.71	221.2	2.76	14	11	1		3	178.00	5.93	49
Kluang, Johore ...	88.1	70.4	79.3	92	69	79	74	81.2	81.7	3.64	92.5	0.98	14	13	4	12		187.05	6.23	51
Bukit Lalang, Mersing, Johore	86.0	71.2	78.6	90	69	79	74	81.0	81.3	5.92	150.4	1.14	16	15	6	1	2	207.05	6.90	57
Alor Star, Kedah ...	87.5	74.4	80.9	89	73	82	79	86.3	86.1	3.29	83.6	0.76	16	13	4			212.55	7.09	59
Kota Bahru, Kelantan ...	89.6	73.0	81.3	92	69	86	75	84.9	85.4	3.61	91.7	1.14	13	11		1	3	218.05	7.27	59
Kuala Trengganu, Trengganu	88.9	72.3	80.6	92	71	80	75	84.1	85.2	3.04	77.2	1.16	14	12	3			208.50	6.95	57
HILL STATIONS.																				
Fraser's Hill, Pahang 4268 ft.	74.4	62.3	68.3	78	59	67	65	71.5	72.0	4.89	124.2	1.28	15	12	2	6	2	192.85	6.43	53
Cameron Highlands, Tanah Rata, Pahang 4750 ft. ...	71.8	56.2	64.0	76	49	67	62	69.7	69.6	6.69	169.9	1.40	19	14			3	134.25	4.47	37
Cameron Highlands, Rhododendron Hill, Pahang 5120 ft. ...	70.9	58.7	64.8	77	57	65	61			7.22	183.4	1.69	18	14			3	135.60	4.52	37

Compiled from Returns supplied by the Meteorological Branch, Malaya